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THE INUTILITY OF FACTORY SECRETS.

THERE are still some rubber-men who persist in keeping alive the traditions formerly common to all manufactures in regard to protecting the mysteries of their craft from outsiders—competitors and others. The pertinacity with which these mill-owners guard their details of manufacture would suggest to a stranger that they formed the principal stock in trade of the respective factories, and that ruin would follow any leak of the treasured secrets. It may be doubted, however, whether this constant keeping watch over something so elusive as secrets of manufacture is really worth the trouble.

The question turns first upon the value of such secrets. It is safe to say that there is not employed in any rubber factory in this country to-day, on an important scale, a compound, or a method of manipulating rubber in any stage, which is not in use in other and competing concerns. Hence the owner or superintendent who is fondly guarding any bit of practice is most likely in the position of a watchdog over an empty treasury. In case one had a really valuable secret, how long would it be possible to prevent others in the trade from appropriating it? One is reminded of how the English people succeeded in winning all the treasured mysteries of the crafts by which Holland so long maintained supremacy in the industrial world, and transferred that supremacy to their own tight little island. But how futile was all the subsequent English legislation against the emigration of skilled labor or the export of manufacturing plant to any other country. England has stopped that sort of thing now, but her laws to prevent secrets of manufacture from getting abroad would have been a dead letter long ago, no matter how strongly their enforcement might have been attempted.

To come closer to the point, look at the claim of Charles Goodyear's executors that his secret of vulcanization, covered by patents as it was, and sedulously guarded by all hands interested, was boldly appropriated by Hancock in England. If this was not really the case, then Hancock almost simultaneously made the same discovery, or produced the identical invention, which is not a strange thing to happen when many persons are working under like conditions, on like lines, to produce a like result. Thus it is possible that the manufacturer who stakes everything upon guarding a given secret may be forced one day to admit that it has been discovered in the regular line of investigation in a rival concern.

But even if the danger of discovery in this way did not exist, it is practically impossible to guard a secret of manufacture successfully for a day after it passes from the bosom of its author. One can never know how far to trust his employés as a body, and the most trustworthy employé who becomes acquainted with an important new method is likely some day to find it to his financial advantage to go to another employer, carrying with him all that he has ever learned. In brief, it is of doubtful profit to guard the methods of a mill when it is probable that one's rivals are already in possession of them, and certain that they could get them by really making an effort.

It is doubtful whether it would pay to keep these secrets even if one could. Unquestionably the great development which the India-rubber industry—in common with others—has undergone in the United States has been due to the widespread rivalry of competing manufacturers, not merely in reducing cost of production, but in improving the character of products and in more nearly adapting their styles to the tastes and wants of the public. And these rivals have often worked in the full knowledge each of what the others were doing. Every real improvement in the rubber industry—or other branch of manufacture—no matter by whom made, has benefited the whole industry, and opened the way for further improvement to everybody engaged in it. The more widely diffused the methods of manufacture become, the wider become the opportunities for invention. No doubt, if the facts bearing upon this subject were brought together, it would be found to be a rule that, in those countries where manufacturing secrets are most jealously guarded, the progress of improvement has been least marked and least rapid.

There is one way by which factory methods may be protected from use by others—that is, provided they are profitable. There have been, in the history of the rubber trade, fortunes built up under the protection of letters patent at a rate which would seem, to the uninformed, incredible, and no doubt the vast profits made were considered by those who shared them to be due to the keeping down of competition. But there have been just as great profits in the rubber trade without any aid from patents, and, no doubt, the same thing will happen again. Every year the field of production of rubber goods without the range of patented articles becomes widened, and the rubber industry will not go to pieces when every existing patent has expired. There are more rubber shoes made to day, by far, and better rubber shoes, and at lower prices, and greater profits are made by the manufacturers of such shoes, than was ever dreamed of during the life of Goodyear's patent. The same thing is true of rubber belting and hose, and of a long line of other products which were once protected by patents, in addition to the attempted guarding of compounds and superintendents' secrets in practice. But has any firm ceased to make these lines of goods because of the expiration of a patent? Or has any one stopped a given line of manufacture because of the leaking out of factory secrets, which has been going on continually since the inauguration of the first rubber factory?

Instead of being hurt, we believe that the rubber industry would be helped if every compound in use and every process for the treatment of rubber were in print, and as available in libraries and book stalls as the popular novels of the day. And not the least benefit might accrue to those manufacturers who to-day waste their time and fritter away their energy in guarding supposed valuable secrets which are in use already by all who care for them. By dropping all this secretiveness, their minds would become better fitted to appreciate essential matters—what their rivals were doing, for example—and, instead of depending upon the false prop of supposed exclusive meth-

ods, they would enter upon the field of rational competition with a fuller knowledge of what had to be contended with.

THERE HAS BEEN SO MUCH TALK about the cultivation of India-rubber, both within and without the limits of the rubber trade, that an article on that subject in this issue of THE INDIA RUBBER WORLD cannot fail to be read with interest. We may add that the writer, Mr. Gustav Mann, after a thorough course in forestry, became officially connected with the government conservation of forests in India thirty-three years ago, being personally concerned first with the introduction of the cinchona trees in that country, and later with the establishment of the government rubber plantations in Assam. There is no higher authority on the matters of which he writes, and his assertion that the cultivation of rubber-bearing species outside of their native limits is impracticable is worthy of serious consideration.

THE PHILADELPHIA COMMERCIAL MUSEUM's monthly trade report to trade organizations for November last consisted of a compilation of interesting and apparently authentic information on "The Amazon District of Brazil," which can hardly fail to prove of value to those who are interested in building up an export trade with that section.

DEATH OF A GERMAN RUBBER EDITOR.

WE regret to find in our Dresden contemporary, *Die Gumm-Zeitung*, the announcement of the death of its editor and founder—Mr. T. H. Gampe, at the age of 55—and at the same time take pleasure in learning that the paper will be continued by the heirs without change of policy, under the editorship of a former associate. This notice has been received, in German:

Be it known to all friends and acquaintances that our beloved husband and father, the author and editor,

THEODORE HEINRICH GAMPE,

died to-day at 2.30 A. M., after a long sickness.

He, who knew the dear deceased in his unselfish work for his family, his always open loving personality, will understand the sorrow of those left behind, who lose in him the truest adviser, a never failing support, the purest image.

The bereft family beg for quiet sympathy.

Dresden-Blasewitz, January 3, 1897.

USES OF RUBBER IN THE BOTTLING TRADE.

AT a recent exhibition in London of mineral-water and brewery plant a stand was occupied by the India Rubber, Gutta Percha, and Telegraph Works Co., Limited (Silver-town), who have given special attention to the manufacture of ebonite and other screw stoppers for the use of mineral-water manufacturers, brewers, and the trade generally. They exhibited solid ebonite screw stoppers fitted complete with red India-rubber rings, which will, it is claimed, remain unaffected by the action of wines, beers, or aerated waters, or by the climate, while the threads will not strip. The company also manufacture beer piping, which, it is stated, is tasteless, while at the same time thoroughly clean, durable and flexible.

THE OUTLOOK FOR RUBBER CULTIVATION

*By Gustav Mann,**Late Conservator of Forests for Assam.*

THE rubber exported at present from Assam is only about one-third the quantity of what was exported in 1868, and about only one-fourth of the present export is procured out of the Assam forests, the other three-fourths being obtained from beyond the British frontier. The price paid for Assam rubber in Calcutta now is double that which was paid in 1868, while in the London market the price now paid is about the same as it was formerly. The price which has to be paid in Calcutta has had to be increased so much on account of the greater difficulties in collecting the rubber, there being fewer trees now, and the distance the gatherers have to go for it is much greater. The increase of rubber exported from Burma is quite temporary, since the trees are comparatively few, and effective protection in the natural forest is impossible.

The activity of the rubber trade, as described from time to time by THE INDIA RUBBER WORLD, has convinced me more than ever that the natural forests, without special measures of conservancy and the establishment of plantations, will not be able to supply very much longer the steadily increasing demand for this now indispensable commodity.

There is no reason to get alarmed about a matter of this kind, or to fear a sudden depletion of the forests, for long before this can take place the rise in the price of rubber, in consequence of its growing scarcity, will awaken people to the undoubted fact that any tree, treated as the rubber trees are at present, will live a comparatively short time only, and that very many also will die in consequence of excessive tapping. Such treatment also very materially hinders the natural regeneration of rubber trees, especially as other members of the same forest, whose growth is not interfered with, will have the advantage, and naturally take more and more possession of the ground to the exclusion of rubber trees, since first necessities for the growth of any tree are light and air. It is a great error to think,

because rubber trees have held their own in the forest where their growth was not interfered with, or very little, that they will be able to do so now also, when their growth is so greatly hindered by the tapping for rubber.

It is folly to think that the money, time, and trouble used to ascertain all about the cultivation of rubber trees has been expended needlessly, for most valuable knowledge has been gained, which will always be of great use to the cultivator, as necessity for planting is forced more and more upon the world. Rubber trees cannot be grown as

quickly as mushrooms, but require twenty-five to thirty years to become large enough to be tapped with safety and to use such phrases as "unlimited supply" about forest produce shows ignorance of vegetable life in general.

The price of rubber has not risen in spite of the increasing demand, because of the extraordinary rapidity with which new rubber countries have been explored of late, but we are now pretty well at an end with these new discoveries of rubber producing forests, and in another fifty years, I venture to predict, rubber will not be bought at the same price as now.



FICUS ELASTICA (CAOUTCHOUC TREE OF ASSAM).

[Photographed for Mr. Gustav Mann, in the native forest in the Charduar of the Darrang district in Assam. The tree shown is about 100 feet in height.]

The acclimatization of American rubber trees in Asia has not been a success, and generally speaking, I am now inclined to think that all rubber plants had better be grown in the countries in which they are indigenous, particularly so, since land for cultivation in those countries is available and even abundant.

For the present, I fear, not much private capital will be employed on such plantations, because twenty-five years is a long time to wait for a return, when tea, coffee, cocoa, cinchona, oranges, and other plants give returns in one-third or one-fourth the time. It is true that timber forests take even twice or three times as long as rubber to give a return, but then very little private capital is invested in the latter, this being left to the state, and conservancy of rubber forests and the forming of rubber plantations will probably for the same reason have also to be left mainly to the state.

As for the restraint of the Brazilian rubber gatherer from recklessly destroying the tree which yields his principal support,—in Assam, which is, in comparison with the Amazon valley, a small country, very much more accessible, we have found it quite impossible to prevent the destruction of rubber trees in the natural forests, and this will no doubt, be also the case in Brazil, Venezuela, and Central America, when rubber trees are becoming scarcer and the high prices are a greater incentive to break the law.

A radical measure like the prohibition of rubber-gathering in Nicaragua for ten years might be enforced easier, but then what an inconvenience to the rubber trade would be caused, if such protection had to be resorted to in Brazil, not to speak of the inconvenience which would be caused by the loss of revenue.

Plantations, on the other hand, can be controlled much more effectively, besides which there is an enormous waste of land in relying on natural forests, when the species of rubber tree met with does not grow gregariously, but only scattered, and the other members of the forest are producing little else but firewood, for which even in many places there would be no sale; a very serious consideration when a country is becoming opened out, and land is more and more taken up for other purposes, as must be the natural consequence of the general development of trade.

To believe that much good is being done by the offer, as in Brazil, of a reward of \$5.46 for every 2000 rubber trees planted, is also a delusion, for the work of planting is but a trifle compared with the subsequent taking care of the plants, and if great care is not taken, the most, if not all of them, will soon succumb, as has been the case in Assam. I take it to mean that such trees are to be planted in the forest, and that they are to become the property of the state.

There is no doubt, I think, that the Brazilian rubber is of better quality than other kinds. This is primarily due to the species of tree producing it, but a good deal has also to be attributed to the simple and effective way in which it is dried for transport, which is practicable only because large quantities of rubber in its crude liquid state can be gathered and brought to the place of drying, and this can be ensured to a greater extent even in plantations, while on the other hand it would become more and more difficult to do this in the natural forests, as trees become scarcer. Brazil before all other countries should take early measures to establish extensive rubber plantations.

The requirements of each particular species will have to be studied, and the planting have to be done accordingly. Lack of labor is in many cases the first difficulty to be overcome, and if the Indians cannot be depended on for regular, systematic and continuous work, they will have to do it irregularly, but done it must be. Much has been accomplished under very similar circumstances by such savages in India. They mostly know the clearing away of forest and planting, and can therefore be left a good deal to themselves. What they dislike is too much interference, and this can very well be dispensed with at such rough work.

It reads like a fairy tale, that estimate in a report from the British foreign office on rubber cultivation in Mexico. Whoever made that estimate must have been gifted with a very vivid imagination. If such returns could be realized there would not be much difficulty in inducing people to invest money in rubber plantations. In one of my earliest reports on rubber cultivation in Assam, I fell into a similar error, inasmuch as I estimated that lac might be obtained from the *Ficus elastica*, as well as rubber. Subsequent experience has taught me that the lac insect will ruin a rubber tree in a comparatively short time, excluding all possibility of also procuring rubber from it.

The Americans are so intensely occupied with making the utmost of the present, that they have no time left to think of the future. It is therefore no wonder that they do not believe in the supply of rubber running short, and consider precautionary measures unnecessary and uncalled for. Nevertheless, they will soon find out their error, and have to admit the necessity for rubber planting, just as the necessity for forest conservancy in general has now been admitted.

Munich, Bavaria, December 10, 1896.

RUBBER TREES AND SEEDS FOR SALE.

IN a notice, two or three years ago, of a descriptive price-list of tropical seeds and plants issued by J. P. William & Brothers, of Henaratgoda, Ceylon, we quoted their prices of seeds of two varieties of India-rubber—the Pará and Ceará sorts—and of plants of the former. A new edition of their catalogue, just received by THE INDIA RUBBER WORLD, not only devotes more space to India-rubber, but embraces a larger number of rubber species. The prices of rubber-trees and seeds may thus be condensed:

	Seeds per 1000.	Plants in Cases.
<i>Hevea Brasiliensis</i> (Pará rubber).....	£5.	£10 per 500
<i>Manihot Glaziovii</i> (Ceará rubber).....	£1.	.....
<i>Castilloa elastica</i> (Nicaragua rubber)...	£7.	£10 per 200
<i>Landolphia Kirkii</i> (Mozambique).....	£7.	£10 per 200
<i>Urceola esculenta</i> (Burma rubber).....	£1.	£10 per 200

It will be seen that seeds are offered of five varieties of commercially-valuable rubber, all grown in the Ceylon nurseries, and some of the varieties are offered in lots as high as 50,000. Trees or plants of four varieties are offered. Besides, the catalogue includes *Payena Leurii* (gutta-sundek) and *Willughbeia firana* (gutta-singarip), but prices are not given for these. Notes of interest are given with regard to some of the species mentioned. Thus it is mentioned that "the seed-coat of the Ceará rubber seed is of very remarkable thickness and very hard, and the natural process of germination occupies some months. . . The best and simple way of germinating the seeds according to our experience is as follows: Sow the seeds in an open place, allowing to remain fully exposed to sun and rain, keep the place free from weeds, and seeds will germinate in a few months." The Pará rubber seeds are as large as nutmegs, and are sought for eagerly by pigs.

One more item in this catalogue which may be mentioned is the *Achras sapota* (sapodilla plum)—the tree from which is derived the gum known in Mexico and Central America as Chicle, and used extensively in the United States as the basis of the chewing-gum manufacture. The catalogue says: "Sapodilla fruit is highly esteemed as one of the best of the tropical fruits, and one for which a taste does not have to be acquired; the sap of the tree yields Gutta-percha and the bark contains

medicinal properties. Fruits exported, cultivation easy, and thrives from sea-level up to 2000 feet. A full-grown tree gives an annual income of over £1 from fruits." The price of seeds is £7 per 1000, and trees cost £10 for 120 in a Wardian case.

ADVICE WANTED ON RUBBER PLANTING.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I wish to inquire whether you can recommend any book as a guide to the cultivation of Nicaragua rubber (*Castilloa elastica*), and the harvesting of the product. I think of going into rubber cultivation, but I fear many mistakes at first and consequent financial loss, unless I can have advice upon the subject. Experience is an adviser with which, in a case like this, it takes too long to become acquainted.

H. M.

[THERE is no book on the cultivation of India-rubber, though one both comprehensive and practical might be compiled from the numerous references to the subject which have appeared in THE INDIA RUBBER WORLD during the last seven years. It is possible that we shall be impelled to undertake some such publication shortly, by the many inquiries for information at our offices. Much space has been devoted to rubber cultivation in the newspapers, but what has been printed is mainly rubbish. As for the Nicaragua rubber, we have the permission of Mr. J. N. Garrison, of Bluefields, Nicaragua, to refer to him any inquiries with regard to the planting and cultivation of this species.—THE EDITOR.]

THE SO-CALLED FLORIDA RUBBER-TREE.

ONE William Knauth is moved by the nonsensical newspaper reports which have been printed of late about India-rubber in Florida to write to the *Jacksonville Times-Union*:

"There is no wild rubber tree in this state. It is true that a representative of the fig family, to which the rubber tree belongs, is to a small extent indigenous in extreme southern Florida; this is *Ficus aurea*. Why this is called wild rubber tree I do not know, as it is no more capable of furnishing rubber than our common fig, *Ficus carica*. The commercial rubber is obtained from *Ficus elastica*, a true denizen of the tropics, and very impatient of a temperature below 50° F. for any length of time."

* * *

MUCH of the talk about planting rubber in Florida seems to have been inspired by Major Joseph Orton Kerbey, who sailed recently for Pará "preparatory to starting the cultivation of the rubber tree in Florida, and thereby introducing a great industry into the United States." A newspaper report adds that he has taken "jewelry and bright clothes to barter with the natives. He will personally collect good seed, and at the same time get as much insight as possible into how rubber is procured and handled preparatory to shipment."

Respecting the published report that this expedition is under the auspices of the Philadelphia museums, the director thereof writes to THE INDIA RUBBER WORLD: "It is true that Mr. Kerbey will give his attention to certain requests of this institution while on his trip through Brazil, yet I do not think it could be said that he is officially connected with the museum."

The museum authorities seem to regard the Florida rubber idea favorably. The director writes to us: "While the difficulties in the way have hindered taking up the matter extensively, yet it seems not unreasonable to suppose that something can be done."

RUBBER TREES IN CALIFORNIA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have canvassed the matter of rubber trees in California pretty thoroughly, and find that no trees have been grown here for commercial purposes. The sea coast counties seem to be favorable to certain classes of trees, notably the rubber tree of Nicaragua and the *Ficus Australis*. In San Francisco, protected by houses, the *Ficus elastica* will grow quite readily but it is too tender for general out of door cultivation. The trees seem to require more moisture than we have here, as they do not yield as much sap as would be considered profitable for commercial purposes, though those which are at all hardy attain a large size; some in Los Angeles being fully fifty feet in height. Experiments in this direction have been hindered by the high prices of small rubber plants, \$2.50 being a common price for a 6-inch tree. As however they grow readily from cuttings in greenhouses some one in the future may attempt their cultivation. At the same time there seems to be little disposition here to go into the industry.

From Mexico I hear that there are no rubber trees found in lower California, though they are found near both oceans; in the states of Colima, Guerro, and Chagras on the Pacific side and south of Tampico to Guatemala on the Atlantic side. There the trees grow indigenous, and also I am informed that their cultivation is quite profitable. FREDERICK A. C. PERRINE.

Palo Alto, Cal., December 3, 1896.

A NEW MEXICAN RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I am sending you a sample of a gum which is produced here in Mexico from a shrub which grows most profusely. The method of extracting is to cut the shrub and squeeze the juice out, after which it coagulates. My belief is that this shrub would be well worth cultivating not only in Mexico but in the southern parts of the United States. Would you kindly have the sample of gum examined and let me know its market value?

E. GUILLO VOGEL.

25 Hotel Jardin, Mexico, November, 1896.

[THE sample which our correspondent sent was examined by a competent chemist and found to be worth about 22 cents a pound. The chemist further stated that it seemed to be a gum that heated easily, and he thought that for this reason that in its crude state it might deteriorate more quickly than other kinds of rubber. Our correspondent, however, in a later letter explains that the sample shown was then a year old. That being the case it is possible that our manufacturers some time in the near future may receive another new and valuable rubber from our neighbors in the south.—THE EDITOR.]

GUTTA-PERCHA PLANTATIONS.

THE Gutta-percha supply is so important a problem that an article, by Albin Geyer, in the *Deutsche Colonial Zeitung*, on Gutta-percha plantations should be of interest. Gutta-percha, as everybody knows, is the sap of *Isonandra gutta* and other trees of that family which used to form forests in the Malay Peninsula, Sumatra, and Borneo. At first the trees were simply cut down to secure every drop of the valued sap. Later on people wisely resolved to tap the trees every three years, as had been the custom with rubber trees. In spite of this destruction has continued so that real gutta trees have now become rarities. Whether Balata is or is not equal to the best Gutta-percha, it is superior to the poorer grades, and the indus-

try has, therefore, assumed unexpected dimensions. The reports show that last year's exports, chiefly from Dutch Guiana, and, in a lesser degree, from British Guiana and Venezuela, were greater than ever. But it is said that the governments there allow a systematic spoliation, so that the harvest will soon become smaller, and we shall once more have to look out for other substitutes. Synthetical chemistry has as yet been less successful with Gutta-percha than with rubber even.

Cultivation seems, therefore, the only way out of the difficulty. If the attempts have as yet mostly failed, planters have learned from the failures. Serullaz and Jungfleisch have observed that most of the Gutta-percha is to be found in the leaves, and that it can be extracted by chemicals. Jungfleisch obtained 10 per cent. of the weight of the dried leaves, a little greenish, it is true, but not otherwise inferior to the ordinary product. That the process is workable is proved by the example of Hourant, of Paris, who imports dried leaves to extract them with toluene, it is said. At Kuching, in Combodia, works for drying the leaves have been erected. Two crops of leaves are reported to yield as much Gutta-percha as could be secured by tapping. And the leaves can be picked without endangering the tree.

Plantations would then be a help, provided the best tree was chosen. This has not been done as yet. The cultivators of Gutta-percha must be prepared to wait and not too eager to reap. The business is, hence, not tempting to private individuals, who cannot be expected to risk heavy investments in young colonies. It is for these reasons that Geyer thinks that the government ought to step in until it has been established whether or not Gutta-percha plantations can be made profitable. The conclusion appears correct. Coffee, tobacco, etc., are now cultivated everywhere, and one district fights against the other. Gutta-percha can, so far as we are aware at present, only prosper in certain tropical climates, and the demand for it is far greater than the supply.

GUTTA-PERCHA IN THE FRENCH SOUDAN.

IN south-east Soudan, especially in the Baleya and Sankaran districts, Sarrazin has found a vine, the *Lythophilum alba*, said to yield a true Gutta-percha. According to the *Révue Industrielle*, probably an abstract from an unacknowledged source, the Gutta-percha might be gained by making T incisions in the bark all the year round. It would be better, though, to collect the green fruit and to gather the milky sap, the latex, oozing from cuts. The latex may be treated in different ways. It may be exposed to the sun until most of the water has evaporated; the mass is afterwards baked and kneaded, but gives a spongy material. Or, the latex is kept for a fortnight in large, closed vessels, in which the water and Gutta-percha separate, the latter floating on the top, likewise in a spongy condition. It is better to heat the milk over a slow fire in open vessels; the operation lasts two hours for about ten quarts of liquid. The mass is then thrown into cold water, washed, baked, and kneaded. This latter process may be modified by adding some spirit to the liquid before heating. This would be a pretty expensive method, but is said to give a superior material. The yield is about a quarter of the latex.

DETERIORATION OF ASSAM RUBBER.

IN the July *Indian Forester* (Mussoorie) is published the following copy of a letter dated May 11, 1896, from the reporter on economic products to the government of India, to the inspector-general of forests, Simla:

"Replying to your demi-official dated 24th ultimo, on the subject of the Assam rubbers, I am glad to find that you underestimated them. That gives a better token of the future, than if you had gone to the other side. As to the want of uniformity in Carritt & Co.'s valuation, so much depends in the eyes of brokers on external characters, that the sample that had got a little more oxidized through more direct exposure to air than another would at once get a lower price assigned to it. It is wonderful how rapidly India-rubber in its crude state suffers. Some of our samples in the museum have become liquids, devoid of all elasticity. This, I think, should give the practical suggestion that the sooner rubber leaves the producer's hands and is taken over by the purchaser the better. No consignments should be delayed in India.

"But besides oxidization there are many other ways by which one parcel drawn from identical trees and prepared by the self-same process will fetch a lower price. But I think the Assam conservator told us that the samples were obtained from several recognized races of the rubber tree. So that there may be a botanical reason for the variation in the valuation. I am promised botanical samples of each form, and will, I hope, soon be in a position to express an opinion upon this feature. I hope Assam may be able to furnish us larger samples. We could easily find willing buyers, as there is a distinct demand for Assam rubber."

ADULTERATION OF LAGOS RUBBER.

AT a recent special meeting of the African trade section of the Liverpool chamber of commerce, a letter was read from the agent of Elder, Dempster & Co., at Lagos, stating that the adulteration of India-rubber at that port was assuming serious proportions. The chairman of the meeting, A. L. Jones, speaking as the representative of a bank, said that it was a serious matter to have to make large advances on an article which, when it got to Liverpool, would be found to be largely adulterated. After some discussion a resolution was passed, requesting the government of Lagos to enforce more strictly the "adulteration of produce ordinance" of that colony, passed in 1889, which applies to rubber as well as to other articles. The resolution also requested the government of Gold Coast to pass and enforce a similar law. It was stated at the meeting that legislation in the Niger Coast Protectorate had led to good results in checking the adulteration of produce.

In reference to the proceedings above noted, Charles McIver, of W. B. McIver & Co., has published a statement to the effect that his firm have done about one-third of the Lagos rubber business since its development began about two years ago, and that the resolution appears to him to be "a most unwarranted slur on those engaged in the Lagos trade." He adds: "European and native merchants have been buying rubber, many of whom knew nothing about the qualities of rubber, and they buy more or less largely, paying a price without discriminating as to quality, and were surprised, apparently, that the rubber buyers in this country [England] would not take it over in the same way. The bank apparently found their margin more than gone in some cases. Is this a case for government interference?"

Mr. McIver points out that it is only two years since the Lagos natives were first taught to work rubber, and that the natives of Gold Coast, after twelve or more years of experience, still spoil a good deal of rubber. "Experience leads us to believe that the wilful adulteration by the native gatherer is very rare, and adulteration by the native middleman also very rare and difficult to effect."

EFFECTS OF EXTREME HEAT UPON DENTAL VULCANITE.

By C. A. Allen, D. D. S.*

THE physical changes which vulcanite undergoes during the process of its becoming a solid body, I think, are little understood. At any rate, the remedy for many of the evils of unscientific treatment is too rarely employed. To begin with, let us briefly consider the elementary character of this body. The gum as it comes to the manufacturer is purely a vegetable compound—a hydrocarbon—made up of $H_{16}C_1$ (however, upon these proportions authorities differ, but not to the injury of our argument). Sulphide of mercury, which renders the body of use in our art, is now added in the proportions of one to two of rubber. We now have a compound which, when properly treated, produces a uniformly dense and sufficiently strong base for our purposes.

Some of our high-attenuationist friends of "little pill" fame boldly declare red vulcanite plates to be the origin of all obscure physiological derangements, charging as they do that the coloring pigment is red oxide of mercury, which is highly irritating to mucous tissue. The absurdity of this charge is clearly manifest when it is stated, as a matter of fact, that our coloring pigment is simply sulphide of mercury. This preparation possesses no toxic or even disturbing physiological effects whatever, and may be brought into mucous contact with impunity.

Experimentation by thorough processes, aided by the most delicate instruments, has demonstrated that the quantity of mercury which it is possible to evaporate from a vulcanite plate, before actually destroying the body itself, is only infinitesimally small. It should be remembered that, in order to have even this slight manifestation of the "enemy's" presence, a high degree of heat must be attained, a condition which could not be sanely looked for in the human mouth.

In the process of vulcanization it is readily conceded that we first have fusion of the component parts of the body under treatment, which occurs at certain definite temperatures. What are these points of fusion?

Any work on chemistry will place you right on the melting-point of the sulphur in the mercury compound,—and that will be $237^{\circ}+F$. As to the melting-point of the hydrocarbon compound (rubber), elaborate experiments by Dr. A. P. Southwick prove, beyond the possibility of controversy, that this will be at $248^{\circ} F$.

Now, with the component parts of our body all fused, we may naturally expect the commencement of that remarkable and little understood physical change in the compound which we term vulcanization. That this change does begin at once upon the fusion of the compound's ingredients, and that vulcanization as we understand it may be fully completed without the addition of a single increment of heat, is easily demonstrated. All that possibly could be required in addition to the present conditions

would be a continuation of the 248° to $250^{\circ} F$. over a longer period of time. If doubt exists in the mind of any one present as to the truth of this statement, let me suggest to him that he can easily obtain a "lazy man's proof" of it by asking any manufacturer of rubber garments how he treats the articles as to temperature, time, etc.

Continuing in my quotations of the authority mentioned, I fearlessly make the statement that the actual destruction of vulcanite begins at $300^{\circ} F$. and continues in proportion as the temperature is raised to $600^{\circ} F$., where rubber will be entirely dissipated, the sulphur being affected in the same manner at $824^{\circ} F$.

Now a word in regard to vulcanizers and their use. It should always be borne in mind that the degree of heat indicated by the mercury-bath thermometer never registers the degree of heat corresponding to that of the inside of the vulcanizing pot where the case is being treated. The figures for this statement are as follows: If the stratum of atmosphere inclosed in the pot above the water line (when the cap is adjusted) is not expelled upon a degree of heat sufficient to generate steam being reached, we can always confidently rely upon our thermometer registering from 15° to $18^{\circ} F$., according to the amount of water, below that actually existing within the chamber. Not only this, but we must always be prepared to take into account a considerable loss of registering power of the thermometer through the radiation of heat, the convection of air currents, temperature of room, etc. To these influences you can always safely charge a loss of registering power of the thermometer of at least $15^{\circ} F$., and usually more, often $20^{\circ} F$. If these figures can stand verification, and I declare that they can, what will be the result? Simply this: the man who does not expel the atmosphere from the pot really subjects his case to at least $30^{\circ} F$. of temperature more than that indicated by the thermometer. If he does expel the atmosphere he still has $15^{\circ} F$. more than that registered. From this point our deductions are easy. We have declared that the destruction of vulcanite begins at $300^{\circ} F$. actual. As an illustration of this point, let us imagine a case being treated at the old-fashioned $320^{\circ} F$. without regarding these two influences. The result is easy. Instead of $320^{\circ} F$. we have at least $350^{\circ} F$. If the stratum of atmosphere is expelled we still have $335^{\circ} F$. to which our case is being subjected. If these figures and those preceding them are correct, we find ourselves treating vulcanite anywhere from $50^{\circ} F$. down to $35^{\circ} F$. above where the destruction of the compound actually begins. We are now asked what will be the manifestations of this unscientific treatment of the most abused and least understood body in the dental world. Every child in the land associates with rubber the property of elasticity, and that to the degree of exceeding in this respect any other body known to him. Do the high-temperature plates retain this characteristic? By no means, and, on the contrary, they

* Read before the Second District Dental Society of the State of New York, March 11, 1895. Reprinted from *The Dental Cosmos* (Philadelphia).

have entirely lost it. Why? Because the extreme temperature to which they have been subjected has destroyed this natural inherent characteristic.

The early workers of vulcanite will tell you that to-day we cannot produce a plate which can be constricted at the heels, as they "used to do," and thereupon see it return to its former relations. The reason for this is obvious. The pioneers in vulcanite were instructed to vulcanize at a low temperature, about 280° F. Besides this, the machines placed upon the market at that date were so constructed that the heat was carried up and redirected upon the pot, thereby losing but little by the convection of air currents and radiation. If this be true, we now have to account only for the loss of the registering power of the thermometer by virtue of the stratum of air left in the pot. We have stated this in degrees to be equal to 15° F. to 20° F. This reasoning will easily solve the true degree of heat to which the case was subjected, and at the same time demonstrate why that property of elasticity was not lost in the work of the vulcanite pioneers.

The next manifest injury to the base for our purposes will be in its extreme contraction. It should be borne in mind that vulcanite is affected by thermal changes more than any other solid body. Its rate of expansion in ordinary temperatures is somewhat over six times that of iron, about five times that of brass, and nearly four times that of zinc. This extraordinary expansion upon the application of heat will conversely manifest itself by contraction when the opposite thermal condition is applied. How and where will this extreme contraction be manifest in dental plates? If your case be of the stupidly contrived "gum sections" it can express itself only at one point, namely, by a contraction at the "heels," and a consequent raising of the body from contact with the model, most manifest at the posterior part, but really extending itself well anteriorly. How can this be demonstrated? There is but one

way. Preserve your model after vulcanization, and restore the plate to it, when the extreme degree of contraction will be only too manifest. The base will have no manner of contact at its posterior part with the model upon which it was vulcanized. This contraction in case of the use of "gum sections" with properly ground joints must necessarily be at the rear, as the arch cannot be crushed. In the use of "plain teeth" the contraction is diffused throughout the entire plate, and consequently does not appear so prominently at the point mentioned.

The question may be asked, "How can the model be preserved?" This is perfectly easy. As soon as the temperature is reduced to the proper point, open the flask, remove the denture from the model, and at once place the model over a gentle heat for a time sufficient to expel all moisture. Another result of excessive temperature in vulcanization, and the inevitable contraction in the molecular rearrangement which will follow, may manifest in cracked sections or "chipped" joints. Still another condition may present the case with one or more "spongy" points, usually to be expected at the thickest part of the body.

The writer's deductions from the foregoing are that all bodies of vulcanite treated at a temperature above 300° F. (actual) will show—

1. Destruction, increasing proportionately with temperature elevation, and loss of elasticity.
2. Extreme contraction, resulting in the plate having no membranous contact across the posterior part.
3. Broken or cracked sections, or "slivered" at joints.
4. Sponginess of vulcanite at thickest portions, which may be manifest over a considerable surface, or may appear only at certain points in size and shape quite like a split pea.

Remedy.—All of the foregoing results may be obviated by maintaining a temperature within the vulcanizing pot throughout the entire period not exceeding 300° F.

BRIEF ABSTRACTS OF RECENT RUBBER PATENTS.

FIFTEEN patents relating to tires are the record for the month now in review. The particular agony in the inventors' minds as shown in this last lot seems to be to evolve some scheme for making a resilient tire whose elasticity shall be in part dependent upon a series of metallic springs or strips either covering an inner core of rubber or else placed within a rubber tube. No less than eight tires have this peculiarity. It is but fair to the inventors to say that they have shown much ingenuity in their manner of arranging their spirals and strips of metal, at the same time it is questionable if rubber fabric and air in combination can be beaten in the production of a pneumatic tire. Other specialties are a protector for pneumatic tires, a new tire fabric, still another valve, and one more repair tool. A very interesting invention consists of a fastening ring for securing tires to vehicles. The special advantage in it is that any wheelwright can take the tire as delivered to him and shrink it upon the wheel, where it will remain fast almost indefinitely.

In mechanical goods, the inventions, as is natural at this time of year, run in the line of lawn sprinklers and hose goods. The one of paramount interest is an invention by Charles L.

Travis, who produced the Travis sprinkler that had such a large sale last year. His invention here quoted embraces a further perfection of the type already familiar.

The department of rubber machinery in patents usually receives scant attention for the reason that inventions are few; this month, however, they are three in number. The first is a rubber separator brought out by Mr. Askam, the superintendent of the United States Rubber Reclaiming Works. In addition to this are two patents for apparatus for vulcanizing rubber soles to shoes, which bear every evidence of being thoroughly practical.

In boots and shoes there is patented a spring heel for footwear which depends largely upon a rubber cushion for its resiliency. The superintendent of the Last and Pattern Department of the Boston Rubber Shoe Co. also patents a rubber shoe which he assigns to the corporation by whom he is employed.

The miscellaneous inventions embrace an ear piece for telephone receivers, a life preserver, bicycle handle, invalids bath tub, and a very giddy pneumatic skirt distender. That enterprising concern the Mechanical Mfg. Co., of Boston, have also se-

cured another patent on the manner of making air mattresses.

TIRES.

No. 572,159.—Protector for Pneumatic Tires. Edward Davies and Arthur Harrison, Adelaide, South Australia.

A protector for pneumatic and other similar tires, composed of two bands having serpentine folds of any desired pitch, interwoven and interlocked.

No. 572,355.—Bicycle-tire Cleaner. William H. Clark, Providence, R. I.

In a cleaning device for bicycle tires, a case or box fitted to go between the bars of the fork and having one end open and shaped to fit the tire, a stationary block placed in the lower part of the case, a shaft held in bearings in the stationary block and carrying a roll having sharp points on its surface, a movable block of rubber or other yielding material placed on the stationary block and in contact with the points on the roll, a screw fitted in the top of the case to screw down on and hold the movable block, with means for clamping the case to the forked bars of the bicycle.

No. 572,463.—Bicycle-tire. Robert S. Williams, Merchantsville, N. J.

The combination of an inflatable main tire, with a supplementary tire, having ribs on its inner surface so constructed that when the main tire is inflated there will be permanent channels between the outer face of the inflated tire and the inner face of the supplementary tire.

No. 572,738.—Elastic Tubular Tire. Louis J. Wilde, New York, N. Y., assignor of one-half to Maurice Salvin, same place.

In an elastic tire the combination of an elastic tube; and a flexible core with apertured center, the core spirally and loosely wound with flat resilient wire and so wound formed into a secondary spiral coil adapted to fit within the elastic tubing.

No. 573,008.—Fabric for Tires. Peter Krumscheld, Boston, Mass.

A semi-elastic unwoven tire made by laying side by side alternately a thread of fiber and a strip of rubber, then upon this structure laying also side by side alternately a thread of fiber and a strip of rubber, each thread and strip of the second structure crossing the threads and strips of the first at an angle, the two structures being cemented together.

No. 573,049.—Tool for Repairing Pneumatic Tires. David A. Syme, Elmhurst, Ill., assignor of one-third to Otto H. Fleischer, Chicago, Ill.

A repair tool having in combination a tube provided with an inserting end, a cement outlet near the end and a side orifice for the admission of cement to the tube, this tube also having an imperforate portion throughout its circumference between the cement outlet and side orifice, and a plunger located in the tube.

No. 573,392.—Valve for Pneumatic Tires. Warren E. Collins, Boston, Mass.

A valve for pneumatic tires, comprising a nipple having a port therein and forming the main valve seat, a valve-controller, adjustable on the nipple and provided with an auxiliary seat, a valve proper located between the seat, a valve stem therefor extended through the auxiliary seat, and an adjustable spring on the exterior of the seat to normally retain the valve against its inner face.

No. 573,444.—Pneumatic Tire. Langley Claxton, Paterson, N. J., assignor of one-fourth to William F. Herndon, same place.

In a pneumatic tire, the combination of a series of metallic strips interposed between the interior air-chamber and the tread of the tire, the strips being arranged in layers transversely to the tire, the strips of one layer covering the joints of the next layer, and a silken or other soft cord arranged along the edges of the metallic strips but disconnected therefrom whereby it forms a flexible fender or cushion between the metallic strips and the other parts of the tire.

No. 573,671.—Rubber Tire. Richard A. Leigh, Boston, Mass., assignor to Frederick W. Huestis, same place.

A fastening-ring for wheel-tires composed of balata, shellac, asphalt, Burgundy pitch, and sulphur, the ring to be yielding or elastic, when heated, and a hard, inelastic body when cool.

No. 573,838.—Pneumatic Tire. Charles W. Bernson, New York, N. Y.

The combination with the inner and outer tubes of a pneumatic tire, of an interposed leather puncture-preventing and strength-reinforcing strip for the pneumatic tube, the strip corresponding in width to the part exposed to puncture, and being saturated with tar on its porous side, and on the other side cemented to the tread portion of the pneumatic tube covered by it.

No. 573,907.—Bicycle-tire. Lemuel C. Neal, Lewiston, Idaho.

The combination with a wheel-rim having a circumferential flange extending centrally around its outer surface, of a circumferential series of springs each having a U-shaped bend at its central portion embracing the flange, the terminals of the springs being seated upon either side of the flange, and a flexible sheath or cover surrounding and inclosing the springs and having its longitudinal edges attached to the rim.

No. 573,920.—Spring-tire for Vehicle Wheels. Joseph Ridge, Chicago, Ill.

In a vehicle-wheel and in combination with the rim thereof, a tire, embracing in its structure a series of radially flexing coiled springs, a separate peripheral portion of hard material which so unites springs that automatic shortening of the circumferential extent of the outer surface of the tire may occur under compression, a padding of soft material surmounting the metallic or hard portions, and an inclosing casing or covering of hard rubber of other elastic material.

No. 593,997.—Pneumatic Tire. Richard Pattison, New York, N. Y., assignor to himself, Patrick Brownley and Charles A. Drucklieb, same place.

The combination of a pneumatic tube having a thickened outer surface with an annular groove therein; with a fabric-covered spring-metal ring and a flexible tread having annular grooves therein and notches or openings through the walls, separating the grooves, and cross corrugations upon its outer surface, the parts being cemented to each other within the groove of the pneumatic tube.

No. 574,015.—Tire for Bicycles. Frank L. Woodhouse, Waupun, Wis.

The bicycle tire composed of a heavy flexible rubber tube, within which is placed an elastic rubber tube, and a tube of canvas, and a spiral spring having a flat portion located within the canvas tube, this tube being substantially circular in form and provided at its outer perimeter with a loose portion whereby when the two tubes are inflated an annular space is formed between the outer portion of the canvas tube and the inner portion of the rubber tube.

No. 574,105.—Bicycle-Wheel. Edwin Meid, Laredo, Tex., assignor of one-half to A. Winslow and Henry Hein, same place.

A rim for bicycles composed of inner and outer sections with an intervening space, elastic bands enveloping the section at regular intervals, an elastic casing surrounding and secured to the outer section and laced on the under side of the inner section and a band-tire semicircular in cross section secured to the outer section.

MECHANICAL GOODS.

No. 573,157.—Sprayer or Sprinkler. Edward J. Meyer, Lock Haven, Pa.

A nozzle having a conical recess and within it a loosely-fitted conical sprayer having its outer or base edge cut away or rounded, and held in place by a transverse rod, the inner opening of the nozzle being fitted to a screw-threaded projection for attachment to a section of hose.

No. 573,933.—Lawn-sprinkler. Charles L. Travis, Minneapolis, Minn.

The combination, in a lawn sprinkler, of a suitable base, with a short section of hose or flexible tubing projecting upward from the base, means for conveying water to the hose, the lower end of which is suitably secured upon the base, and revoluble means whereby the upper end of the hose is supported while being free to revolve about the axis of the lower end of the hose or tube, the upper end of the hose having a partial

tangential adjustment whereby the stream emitted therefrom will cause the upper end to rotate.

No. 574,072.—Attachment for Sprinkler-Nozzles. Louis L. Ordner, Cleveland, Ohio.

In an attachment for hose-nozzles, the combination of a band, adapted to loosely embrace a hose-nozzle, with a deflector having a stem and two ears which are pivoted to the band, and a weighted leg on the under side of the deflector.

MACHINERY.

No. 572,851.—Rubber-Separator. William F. Askam, Shelton, Conn.

In a rubber separating apparatus, the combination of one or more troughs suitably arranged, means for delivering rubber and water into the troughs, dams and diaphragms alternately arranged in the troughs, a receiving-tank connected with the troughs and provided with diaphragms depending from the top and having passages thereunder, means to receive and separate the water and rubber.

No. 574,233.—Apparatus for Vulcanizing Rubber Soles to Shoes. George F. Butterfield, Stoneham, Mass.

In a vulcanizing apparatus, a steam chamber, a mold-plate having a rubber containing mold in its outer face, in combination with a skeleton frame hinged to the chamber and provided with fastenings for securing a shoe over and upon the rubber inclosed in the mold leaving the upper-leather of the shoe practically uncovered and exposed to the open air during vulcanizing of the rubber, whereby injury to the upper by heating is obviated.

No. 574,239.—Method of Vulcanizing Rubber Soles to Shoes. George F. Butterfield, Stoneham, Mass.

The method of uniting vulcanized rubber soles to the leather bottoms of boots and shoes, consisting in forming such sole in a mold and suitably vulcanizing it therein; then coating the upper surface of such sole with rubber cement and applying thereon a sheet of unvulcanized rubber compound; then coating the shoe-bottom with rubber cement and holding the shoe pressed firmly upon the unvulcanized sheet, and finally vulcanizing such sheet while the shoe is so held, thereby firmly uniting the sole to the shoe.

BOOTS AND SHOES.

No. 574,103.—Spring-Heel for Boots and Shoes. John Bresnan, San Francisco, Cal.

In a spring heel for boots and shoes, the combination with the upper metallic plate, of a ventilator connected therewith, a lower U-shaped metallic plate, a series of springs forming connection between the upper and lower plates, and a rubber cushion interposed between the plates, the cushion conforming to the shape of the lower plate and having a series of openings therein within which the springs fit,

No. 573,654.—Rubber Shoe. William B. Kinsley, Melrose, Mass., assignor to the Boston Rubber Shoe Company, Boston, Mass.

A shoe of the character specified, comprising a rubber body, a cloth lining therefor extended above the rubber body, a leather top cemented to the projecting portion of the lining and having its lower edge abutted against the upper edge of the rubber body, and a stay-piece stitched to the leather top and lining above the rubber body, extending downwardly across the joint between the top and body, and vulcanized to the rubber body below the joint.

DRUGGISTS' SUNDRIES.

No. 572,506.—Syringe. Isaac Q. Gurnee, Butler, N. J.

A syringe comprising a barrel or cylinder, a detachable sleeve located upon the end of the barrel and provided with a flaring interior portion, a screw cap fitting on the sleeve, and positive interlocking pieces carried upon the cap and upon the handle of the rod for the purpose of rotating the cap in either direction.

MISCELLANEOUS.

No. 572,108.—Earpiece for telephone receivers. DeWitt U. Farrington, Washington, D. C.

An auxiliary earpiece for telephone receivers comprising a cushion-holder having an auditory tube connecting with the usual delivery opening in the ear-piece of the receiver, an elastic ring or sound muffler interposed between the holder and the surface of the earpiece, an elastic cushion seated in the face of the holder and encircling the auditory tube, and a detachable nipple forming a continuation of the tube and having a projection or shoulder thereon for confining the cushion between the same and the surface of the holder.

No. 572,109.—Life-Preserver. Thomas Gordon, New York, N. Y.

In a life-preserver, the combination with an inflatable part or parts, of a chamber or reservoir for containing compressed air or gas, a tube forming a communication between the inflatable parts and the chamber, a valve in the tube, a spring for operating the valve, and a part soluble in water for holding the spring in an operative position.

No. 572,221.—Bicycle-Handle. James C. Spiegel, Middletown, N. Y.

The combination with the handle bars of a bicycle, of a pad adapted to be connected therewith at any point thereon, consisting of a pneumatic cushion or pad, segmental upon the under surface to receive the convex portion of the handle-bar, and being provided at each end with loops through which pass straps carrying buckles through which means the device may be secured to the handle of a bicycle.

No. 573,122.—Air Goods. Albert A. Young, Greenwood, Mass., assignor to the Mechanical Manufacturing Company, Nashua, N. H.

In an air-mattress or similar device having slits in its walls, a flexible stay passed through the slits and provided with wings adapted to be arranged at right angles to the body of the stay and secured to the inner faces of the walls adjacent the slits, the outer ends of the stay being split and the members thus formed secured to the outer surface of the walls at opposite sides of the slits whereby the strain of the stay on the walls is distributed between the inner and outer wall surfaces.

No. 573,625.—Invalid's Bath-tub. Margaret O. Ruffner, St. Louis, Mo.

A bath-tub for invalids, comprising a body constructed of rubber or analogous material, a tubular inflatable body formed integral with and extending around the upper edge of the first mentioned body, a series of tubular bodies formed integral with the side walls of the first-mentioned body and communicating with the tubular body, an auxiliary section located at the head end of the body of the tub, the space beneath which communicates with the tubular body, an air-valve through which the tubular bodies are inflated, and a discharge valve located in the body of the tub.

No. 574,131.—Skirt-Distender. Harry W. Bury, Frankfort, Ind., assignor of one-half to Charles Amos and N. S. Moore, same place.

The combination with a supporting garment of a series of tapered sheaths of flexible material attached to the garment and open at their reduced ends contiguous to the waistband of the garment, and tapered pneumatically-inflatable tubes incased in the sheaths and having inlet tubes extending through the openings at the reduced ends of the sheaths, to facilitate inflation.

TRADE-MARKS.

No. 42,240.—Vehicle-Tires and Parts Thereof. Dunlop Pneumatic Tyre Company, Limited, London, England. Filed Sept. 29, 1896.

Essential Feature.—A portrait and a fac-simile of the signature "J. B. Dunlop." Used since October 1, 1896.

No. 29,288.—Leather and Leather Pneumatic Tires for Bicycles and other Wheels. Alexander F. Munro and George O. Hitchings, Boston, Mass. Filed Aug. 7, 1896.

Essential Feature.—The word "Ruberra," inclosed by a representation of a pneumatic tire, and the letters "M" and "H" printed thereon. Used since June 15, 1896.

NEW GOODS AND SPECIALTIES.

A NEW patented process for making metal molds from which to produce rubber type has just been brought out by a firm in Baltimore. Any form of type, electrotype, stereotype, or other printing plate can be taken and from it a cast in type metal produced which furnishes molds, reproducing in every particular the original. Rubber stamps and rubber type made from such molds are in every way perfect. The molds themselves are made of a peculiar alloy which does not fill up, which may be used almost indefinitely. The discoverers of this new process have duplicated and put upon the market all the forms of solid rubber type used, and are now engaged in making a simple casting apparatus which will soon be put in the hands of the trade. Manufactured by the J. F. W. Dorman Co., Baltimore, Md.

THE UNIVERSAL TUBULAR GASKETS.

THIS invention, in brief, is a packing tube, containing a flexible core which may be slipped along within the tube, as shown in the illustration. The tubing is made in lengths of



twelve feet so that gaskets of any desired size may be easily formed. It is profitable to make the cut on an angle or a "skive" so that the ends will overlap and fit each other. A straight cut, however, will answer. After the cutting, the core is drawn through the tube until it projects at one end far enough to



make a joint say of one or two inches. This extended portion slips into the socket left by the withdrawing of the tube, and the gasket is complete. If the joint does not hold together strongly enough during adjustment it can be easily wrapped with a piece of muslin or the tube tied to the core with a bit

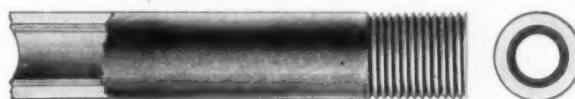


of light string or wire. The great advantage of this is that the necessity of carrying a great variety of gaskets in stock is obviated, and any dealer at small expenditure can easily suit any customer. Manufactured by the New Jersey Car Spring & Rubber Co., Jersey City, N. J.

A HARD RUBBER INSULATING CONDUIT.

THE triumph of semi-hard rubber as an interior lining for conduits may be said to be complete. Electrical experts are a

unit in conceding that India-rubber contains the best and most reliable insulating properties. The Clifton conduit, here shown, is not only a thorough insulator, but it is fire-proof, water-proof and nail-proof. These conduits are already very largely in use and are approved by the New York and Boston Boards of Un-



derwriters, the National Board of Fire Underwriters, the New York Fire Department, and others. The steel or metal armored conduit is so well understood that it requires no detailed description. In this case it is the vulcanite lining that makes it interesting and valuable. The Clifton is made by the Clifton Mfg. Co., 65 Franklin street, Boston, Mass.

RUBBER-PAD CARRIAGE-STEPS.

THE rubber-pad steps illustrated herewith are manufactured by The Eberhard Manufacturing Co. (Cleveland, Ohio), who are in the malleable-iron carriage-hardware business. The steps are made with malleable iron shank and plate, and the rubber pad,



mounted on a thin steel plate, is screwed tight with nut and bolt to the malleable plate beneath. This gives a good, firm footing in all kinds of weather, as well as a clear and pleasing design to the step-pad. The cut to the left represents their No. 1934, for buggies, with 6¼-inch drop, 6-inch projection, and 3½ × 4¼-inch pad. The other is their No. 1936, for phaetons, with 5½-inch drop, 5½-inch projection, and 4½-inch pad.

THE "YELLOW KID" IN RUBBER.

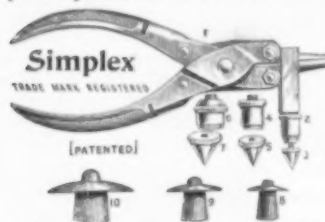
HOGAN'S ALLEY and the Yellow Kid were very amusing to old and young even before perpetuated in rubber. The Rubber Alphabets Company, Nos. 54 to 60 South Colony street, Meriden, Conn., make a set of rubber stamping blocks, showing the "Kid" and his friends, which offer an endless number of combinations. This set includes ten large stamps, a self-inking pad, seven water color paints, and a paint brush. Any boy or girl can stamp out the figures in great variety and then color them to suit the fancy.

TAPERING PLUGS AND THE SIMPLEX REPAIRER.

PLUGS have taken the place of patches in the repair of bicycle tires. A very efficient repair tool is the "Simplex" which, with its tapering rubber plugs is declared by its makers,



the Bicycle Appliance Company, of 1004 Walnut street, Philadelphia, to be the "ideal repair outfit." The tool consists of a pair of pliers, and three sizes of cutter, cutting block and rubber



plugs. The cutter makes a round hole in either single or double tires at the point of puncture, and the tapering plugs are inserted and fastened with cement. No amount of rough riding can displace or puncture these plugs. This feature, in itself, gives it an enormous advantage over the old device of a patch. When the plug is once in, it is there to stay, if it has been cemented, and it will not blow out.

THE "VONDA" LADIES SYRINGE.

THIS instrument consists of a soft rubber bulb, divided into two compartments, and a hard rubber nozzle, having two channels. A few compressions of the bulb will fill the syringe, after which a constant alternating flow is produced; the water or medicated fluid being forced through the injection channel of the nozzle, thoroughly cleansing and removing all morbid secretions of foreign matter, by mild suction through the waste channel, in an effectual manner. This syringe possesses the



following advantages: It is double acting, douche and suction taking place alternately, the fluid being first injected into the vagina and then withdrawn by suction; this alternate action may be continued, as long as desired without removing the nozzle. Its construction absolutely prevents leakage, thus avoiding any soiling of the bed clothes with the injection fluid. It is a thorough cleanser and detergent, the suction, though gentle, removes all foreign matter, which cannot be accomplished by any other syringe; this suction action does not draw

the parts in the least. The widened end of the hard rubber nozzle is so made that the astringent or caustic injections may be held in contact with its walls, as long as desired. This widened end also acts as an insulator, shielding the vulva and other sensitive parts, so that very hot injections can be used. A soft rubber ring slips over the nozzle, which readily adjusts itself to shorter lengths when desired. These syringes are made of extra fine quality of red rubber and are put up in handsome walnut boxes. Manufactured by the Riverside Rubber Company, Belleville, N. J.

THE NEAL PORTABLE BATH TUB.

A FOLDING bath tub for the baby is one of the most practical articles which can be placed in the nursery. The Franklin



Rubber Company, of 13 Franklin street, Boston, market a very neat tub of this kind. It is the "Neal Portable Bath Tub" and is made of pure white rubber on strong drilling. The texture is soft and without seam or wrinkle so its touch is pleasant to its little occupant. The tub can be folded up like a camp chair. It will

hold a foot of water, or if it is desired to use it as a crib, it is instantly available as such. It is easy to take from place to place. It stands three feet high and is 20 inches wide. The patentee of the tub is Miss S. C. Neal, 114 5th avenue, New York.

THE KOKOMO "KORKER."

THE very neat little implement shown in the illustration is useful to completely and permanently cork a puncture in any make of high-grade single-tube tire. The manner of using is very simple. The puncture is located, the point of the implement inserted, two turns of the button will force the compound into the tire, then when withdrawn with a twisting motion, the compound is completely distributed over the puncture where it soon hardens and acts as an effective air dam.



"IT'S IN THE AIR."

THE above very effective headline is the catch-phrase used by the manufacturers of what appears to be the most popular pneumatic grip now on the market. One type of this has already been shown and described in THE INDIA RUBBER WORLD. The illustration accompanying this shows the grip so arranged that it covers the whole of the handle bars, thus allowing the rider to rest his hands wherever he may see fit and still be protected from vibration. This full length grip is adapted particularly for long distance riders and is handsome and durable Manufactured by the Lund Pneumatic Grip Co., 4 Aqueduct Building, Rochester, N. Y.



A RUBBER BALLOON GAME.

A GAME that seems to have in it elements of great popularity is that known as Pillow-Dex. It is somewhat similar to the old

game of battle-door and shuttle-cock, except that this can be played in a parlor while the former required a special court. It is in brief a rubber balloon eight to ten inches in length when inflated, that is so very light that a touch sends it into the air. In playing the game, sides are chosen, a line is drawn the length of a table, and the players striking the balloon try to send it where it will land in their opponent's territory. Pillow-Dex is manufactured by Parker Brothers, of Salem, Mass., who retail the game at 35 and 50 cents, the latter price giving extra balloons and better fittings.

THE MCKAY CUSHION HEEL.

THE advantages of rubber heels need no argument, for the reason that a really elastic cushion of rubber, rightly applied, makes walking easier, particularly for the million who daily travel the city streets. The ideal heel is one that can be easily applied, that is not conspicuous, is noiseless, and adds to ease in walking. The McKay Cushion Heel appears to be all this. In addition it is so constructed that when the rearmost portion of it wears off, it is easily reversed, thus giving double the wear of the ordinary rubber heel. Manufactured by Pingree & Smith, Detroit, Mich.



ANOTHER WISCONSIN RUBBER FACTORY.

THE La Crosse Rubber Mills Co. have been incorporated at La Crosse, Wis., for the manufacture of a general line of rubber goods, excepting footwear. At a meeting of La Crosse capitalists, held on December 26, in the president's office at the Batavian Bank, Mr. G. S. Andrus, for two years past manager of the Chicago Rubber Clothing Co. (Racine, Wis.), talked at length upon his ideas of what could be done in the manufacture of rubber goods in La Crosse. It was then practically agreed to organize a company, which has since been done, with a capital of \$40,000. The officers are Albert Platz, president; James J. Hogan, vice-president; Louis V. Bennett, secretary; and N. Haskell Withee, treasurer. Among those interested is E. E. Bentley, president of the bank mentioned, and the secretary of the company is the assistant cashier of the bank. Mr. Andrus was chosen general manager of the company and at once started for the east to contract for machinery.

NEW PARTNERSHIP AGREEMENTS.

IT is announced by Pusinelli, Prüsse & Co., the rubber-exporting firm of Pará—including the Manáos house of Prüsse, Pusinelli & Co.—that on January 1, on the expiration of their articles of copartnership, Messrs. Ernst W. Schramm, of Hamburg, and Ludwig Alexander Grossmann, of Liverpool, withdrew as partners. The partnership continues from that date, with the admission to the firm of Mr. Hermann Cmok. The capital remains unchanged at 1,000,000 milreis, of which 250,000 milreis are contributed by the special partners, Messrs. Heilbut, Symons & Co., of London and Liverpool. The remain-

ing partners are Mr. Fritz Púsinielli, who left Pará on January 10 to become actively connected with the London house, as mentioned in the last INDIA RUBBER WORLD, and Mr. Otto Prüsse, who remains at the head of the house in Manáos. Mr. Cmok fills the place in the Pará offices made vacant by the absence of Mr. Pusinelli.

In New York Reimers & Meyer have put on record a certificate of renewal and continuation of their limited partnership, to remain in force until December 31, 1899. The general partners are Mr. Hermann Reimers and Mr. Arthur Meyer. The special partners are Mr. Charles Lowenthal, of Berlin, who contributes \$100,000 to the capital stock, and Messrs. Samuel Heilbut, Frederick Christian Karl Fleischmann, and Henry Goedecker, composing the firm of Heilbut, Symons & Co., of London, who also contribute \$100,000. No change is made either in the list of partners or in the amount of the capital stock.

THE FARGO RECEIVERSHIP.

THE affairs of Charles H. Fargo & Co., the large Chicago shoe firm whose failure we reported in September last, have not yet been straightened out. The latest step has been the appointment, by the United States circuit court, of Henry W. Bishop, an officer of the court, as receiver of the firm's effects. In December, 1895, Messrs. Fargo & Co. felt obliged either to secure further credit or to suspend. They were already indebted largely to the United States Rubber Co. and to The L. Candee & Co., who consented to extend further credit, in consideration of a plan whereby they should have a preference in the event of the Fargo company's failure.

The Fargo firm gave judgment notes to the rubber companies for the past and future indebtedness, and then a majority of the directors resigned and were succeeded by clerks in the employ of the attorneys of the rubber companies. The Fargos therefore could give no judgment notes or other form of preference to any other creditors. Judge Grosscup exonerated the rubber companies and the Fargo company from intentional fraud, but held the transaction to have been fraudulent and in derogation of the rights of other creditors, annulled the preferences and appointed a receiver to distribute the assets among all the creditors. Preferences, the court said, might lawfully be made, but only by means that would either give the other creditors notice thereof, or that would still leave it possible for them to secure like preferences.

The attorneys for the creditors who prayed for the appointment of a receiver on the ground named, now contend that, instead of sharing *pro rata*, all other claims should be paid from the assets before anything is given to the rubber companies. Judge Grosscup seemed hardly prepared to go to any such length, but the receiver will take testimony in support of the plea, and the matter will be passed on later. The claims of the rubber companies aggregated \$170,000. The unsecured creditors have claims amounting to \$130,000. The assets are estimated at about \$250,000.

The order appointing Mr. Bishop as receiver was entered January 19. His bond is for \$150,000. The proceeds of the sale of the Fargo stock, in August last, amounting to \$87,000, and now in the hands of the United States marshal, will be turned over to the receiver, together with the accounts payable taken by the attorneys for the preferred creditors (United States Rubber Co. *et al*). The stock at the Dixon (Ill.) factory like, wise goes to the receiver. The factory itself was deeded to the Metropolitan Bank on a confession of judgment for \$50,000. The court has not set aside the deed, but has enjoined the bank from making any transfer of the property till further orders.

COVERING MACHINES FOR WIRES AND CABLES.

THE covering of wires and cables with insulating compounds possessing the necessary degree of electrical resistance, and at the same time of sufficient mechanical strength and chemical composition to resist the disintegrating influences to which they may be exposed, when in service, is a subject that has long engrossed the attention of professional men and manufacturers; and methods and materials have been made the subject of exhaustive study and research.

In the list of materials used for insulating purposes, India-rubber and Gutta-percha deservedly take precedence over all others, as they not only offer high resistance to the electrical current, but possess great mechanical stability as well, and, properly prepared, do not readily yield to the disturbing influences of chemical agencies with which they may be brought into contact, or such as are commonly incident to their soundings.

For interior work, or for service in places where some efficient external protection can be given, paper, worsted, etc., can often be used to advantage, but for aerial and submarine work, where the wire is subject to severe action of the elements, these materials are useless by reason of their instability and permeability, and India-rubber and Gutta-percha must be relied upon to supply the requisite protection.

For applying these substances, two widely distinct systems are used, having little in common, and each possessing advantages and disadvantages peculiar to itself. The first is known as the strip method. In operating under this system, the rubber is cut into strips on which the wire is laid, both wire and strips being then passed through a machine which folds the strips around the wire, uniting the edges by pressure and making, theoretically, a sound and even envelope. While this method has its advantages, it has one great and obvious defect, viz.: the uncertainty of effecting a perfect union between the raw edges of the rubber, and, as a matter of fact, in practice, leaks very frequently develop along this seam, spoiling the wire and rendering the whole system of doubtful utility.

A safer and surer method is to apply the compound in the form of an absolutely seamless covering, by means of what is commonly known as an "insulating" machine; a machine closely resembling those commonly used for the manufacture of seamless tubing, but with the head section so arranged as to permit of the passage of the wire through the die at the same time as the compound.

In this system, the compound, in strips or other convenient form, is fed into a cylinder through which it is forced by a revolving screw, the mass being slightly heated, during its passage through this cylinder, so as to soften it, and render it plastic. The pressure exerted by the screw in forcing the rubber along, is very great, and as the outlet contracts, at the die, it will be readily apparent that the covering, as laid on the wire, will be absolutely unbroken and homogeneous, and of equal strength on all sides, with no seams or other weak points.

While there can be no question as to the superiority of seamless insulation as compared with strip covering, the latter method is sometimes followed because of the greater celerity with which work can be turned out. This state of affairs has led manufacturers to expend a great deal of time and thought in devising means for increasing the capacity of seamless covering machines, so as to obtain the advantage of reliable work at a minimum of expense.

Heretofore, there has been some controversy as to the respective merits of seamless covering machines in which the original course of the insulating compound is at right angles to

the movement of the wire, and those in which both wire and compound run in the same direction throughout their entire course. It would seem to be obvious that, where the passage of a thick and viscous compound is obstructed and deflected from its original course, the rapidity of its motion will be greatly lessened and the speed of delivery proportionately reduced. From this it would appear that straight-delivery machines (those in which compound and wire move in the same direction) could be used to so much better advantage than side-delivery machines, that the latter would be entirely dropped and this would certainly be the case were it not for the fact that, up to a very recent date, the use of straight-delivery machines has been attended by certain disadvantages which more than counterbalanced their greater productive capacity. In the first place, in order to deliver both wire and compound in the same direction it is necessary to pass the wire through the center of the stock-worm, which is bored out to permit of this. Small objection can be raised to this practice where single wires are concerned, but in cables made up of a multiplicity of strands twisted together, the motion of the screw sometimes exerts a tendency to loosen the coils. It has also been claimed that the surface of the wire is occasionally injured by contact with the stock-worm, and that the necessity for entering the wire in close proximity to the driving mechanism renders it liable to become soiled with dirt and oil. These objections have been sufficiently vital hitherto to induce manufacturers to cling to the side-delivery machines, but recent inventions seem to indicate that a decided effort is being made to place the straight-delivery type in the front and incidentally to strike a blow at the strip method of insulating. In accordance with this idea, a line of straight-delivery machines has recently been designed by the Royles, which, in the opinion of experts, successfully meets every objection that has heretofore been urged against machines of this type, and if experience proves them to be as perfect practically as they are theoretically, it will mean some important changes in the manufacture of insulated wire and cables. Strip machines have held their position mainly because of their speed, and despite the many disadvantages attendant upon their use. They have had a hard time to hold their own in the past, and with a machine on the market capable of putting on seamless covering at a very high rate of speed, it would seem as though the solution of the insulating machine problem had been solved.

V. B.

THE LATEST MINE CONVEYING-BELT.

A CONVENIENT form of conveying apparatus is now being introduced, says the *San Francisco Mining Press*, designed for handling barrels and grain sacks and lifting them from one floor to another. This device consists of a broad rubber endless belt, from the outer face of which project pairs of arms or brackets, the two arms of each separate pair being nearly two feet apart; the barrels or sacks are laid or rolled, one at a time, onto these supports, and it is possible to adjust the apparatus so that it will deliver its load at any floor above the starting point. It is necessary to have the freight removed by an attendant as fast as it comes, but the operation of placing the barrel or sack on the floor, in front of the opening through which the conveyer comes through the floor, is performed automatically. Inasmuch, too, as the belt runs exactly up and down, and not slantwise, and as the brackets are shaped alike above and below, the device can be employed for sending merchandise down again from the storage lofts without reversing the direction in which the belt runs—in fact, both hoisting and lowering can be done at the same time.

DEATHS IN THE RUBBER TRADE.

THE death is reported of Douw Ditmars Williamson, at Biarritz, France, on January 3. He was the son of Douw D. Williamson, controller of New York city in the early "thirties" and president of the Farmers' Loan and Trust Co. He was born in New York on November 15, 1830, and after completing his education became interested in the India-rubber trade. In 1849 he went to Pará in the interest of James Bishop & Co., of which firm he was a member, establishing a branch house at that port. In 1851 he went to Guayaquil, via Panama, and persuaded the natives on the Pacific coast to begin the gathering of rubber. He had a brother, Nicholas Williamson, a teller in the Bank of the State of New York, who resigned in 1851 to become secretary and treasurer of the Union India Rubber Co., holding this position for two years, when he helped to organize and became the president of the Novelty Rubber Co. (New Brunswick, N. J.) Douw D. Williamson also became interested in this company, probably in 1856. In 1860 he went to Edinburgh, Scotland, as manager of the North British Rubber Co., established with American capital. The subscribers included William Judson, Christopher Meyer, James Bishop, the Williamsons, and Henry D. Norris, the latter of whom became president of the company in 1866, upon the retirement of Manager Williamson. Within the same period Mr. Williamson organized the Scottish Vulcanite Co., at Edinburgh, for the manufacture of hard-rubber goods. This concern also continues a prosperous existence. In 1875 Mr. Williamson, having ceased to be interested in rubber, with his son, George N. Williamson, organized the firm of Williamson & Son, No. 14 Dey street, New York, manufacturers of chemicals for manufacturing purposes, in which business he was engaged up to the time of his death. Last autumn Mr. Williamson, accompanied by his wife and daughter, left New York to spend the winter in Southern Europe, on account of his health. He was a member of the Union League and other leading clubs, and was active in charitable work. Mr. Williamson is survived by a brother, James A. Williamson, who was also interested in the firm of James Bishop & Co.

* * *

ADAM SCHAAD, superintendent of the Paris white and whitening works of the H. F. Taintor Manufacturing Co. (Brooklyn, N. Y.), dropped dead in the office of the company, on January 13. Apoplexy was the cause of death. He was born in Germany sixty-two years ago. At the age of nineteen he entered the employ of Thomas Weddle & Co., Paris white and paint manufacturers, first at Rochester, then at Poughkeepsie, and later at Newburgh, N. Y. In 1881 the business was bought by H. F. Taintor, later succeeded by the H. F. Taintor Manufacturing Co., and during this interval Mr. Schaad has been superintendent of the works. He took a live interest in the use of the products of his company in rub-



ADAM SCHAAD.

ber manufacture, and came into close touch with the leaders in the rubber industry. Mr. Schaad was a man of great energy, was well versed in all the details of the plant under his care, and was highly valued by his employers. He continued to his death a resident of Newburgh, where he at one time took an interest in politics, filling the office of alderman. He left a wife, five sons, and seven daughters. The eldest son, who had been for fifteen years with his father, will succeed to the position of superintendent. It is fortunate for the company, in view of their large production, that they have such a competent and experienced man to fill the position so suddenly vacated.

* * *

EDWARD C. WALKER died on January 10 at his home in Buffalo, N. Y., in his fiftieth year. When a young man he entered the shoe trade as an employé of a Buffalo firm in which William H. Walker, a distant relative, was a partner. The latter afterward began business for himself, Edward going with him. In 1885 the latter became a partner, the firm style being W. H. Walker & Co., and the business dealing in rubbers. Mr. Walker's death will be sadly felt by the musical public of Buffalo, as in his position of treasurer of the Buffalo Musical Association he had done much to enable the presentation of high-class oratorios and other musical programs.

* * *

THE Hon. Joseph Davis, of Lynn, Mass., who died at Buffalo, N. Y., on January 24, in his sixty-fourth year, devoted his life to the shoe trade, in which he achieved a large measure of success, his business at one time reaching the magnificent proportions of \$1,000,000. He was connected with several banks, besides holding numerous positions of business trust in Boston. In civil life he likewise held many positions of importance, serving at one time in the governor's council. He is survived by his wife and two sons and four daughters, including J. Edwin Davis, treasurer of the Boston Woven Hose and Rubber Co.

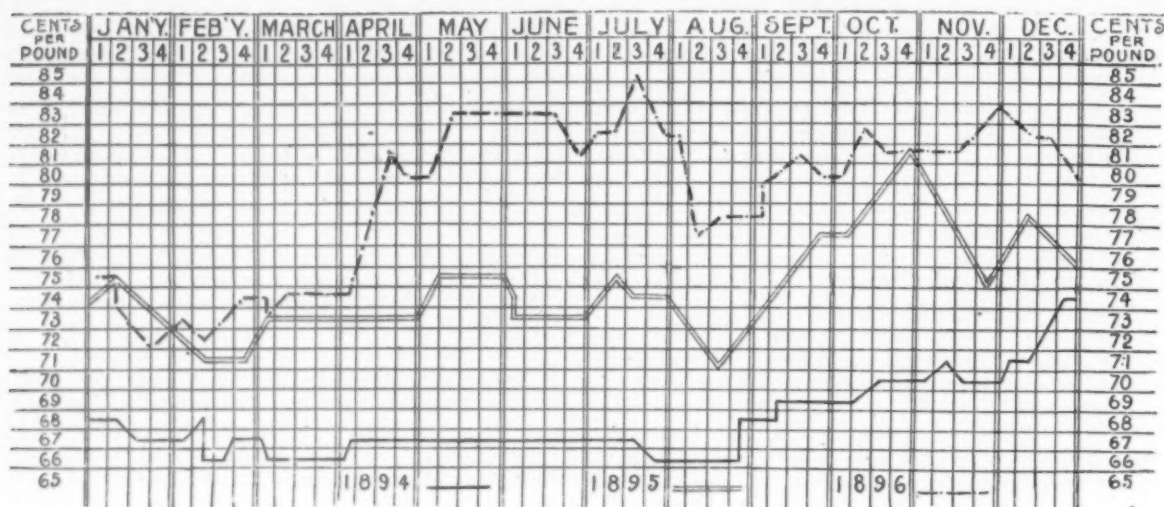
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JAMES R. BIRD died at his residence in Brooklyn, N. Y., on January 5, after a connection for thirty-two years with the New York Rubber Co., as salesman. He was well known and honored in the trade and was looked upon by the company more as a friend and co-worker than an employé.

WILL OF THE LATE JOHN R. FORD.

THE will of the late John R. Ford, the former rubber manufacturer of New Brunswick, N. J., was filed in the surrogate's office in New York on January 19. As originally written, the will left to his wife their city house, No. 507 Fifth avenue, and the contents thereof, together with \$500,000. In a codicil made on August 12, 1895, the testator says that, owing to the death of his wife a month before, her bequest is to go into the residuary estate, and this is divided equally between his sons, James Bishop Ford and John Howard Ford, and his daughter, Mrs. Harriet Herrick, the wife of Dr. Everett Herrick, of No. 126 Madison avenue, New York. Mr. Ford became very wealthy as a rubber manufacturer and through investments in real estate, and left a large fortune. His rubber interests have latterly been managed by his sons, who control the Meyer Rubber Co., and who are both directors of the United States Rubber Co.

THERE is a big field in Germany for American rubbers, says United States Consul Monaghan, at Chemnitz, in a report to the state department. At present Russia is supplying most of the rubbers worn in Germany, but neither the Russian nor the German made article is as good as the American product.



QUOTATIONS FOR ISLAND SPOT FINE PARA.

[Copyrighted, 1897, by Henry A. Gould.]

INDIA-RUBBER STATISTICS FOR 1896.

NOT only was the output of Pará rubber during the past fiscal year greater than in any other twelve months in the history of trade, but the rate of increase over former years was well maintained, being about 6½ per cent. over the output for the year 1895. The growth of the Amazon rubber industry may be illustrated by comparing the exports from Pará at intervals of five years, as follows:

Year.	Pounds.	Year.	Pounds.
1865.....	8,243,000	1885.....	29,310,000
1870.....	10,528,000	1890.....	36,300,000
1875.....	15,144,000	1895.....	46,363,000
1880.....	18,889,000	1896.....	49,515,200

In 1895, for the first time, the takings from Pará in America were exceeded by Europe. With regard to the former, some details may be quoted from the statistical sheet issued by Albert T. Morse, of Nos. 33-37 South William street, New York, which is a continuation of the series so long maintained by Messrs. Earle Brothers.

The consumption of India-rubber by the United States and Canada by different years is indicated by this comparative table, the figures expressing pounds:

DETAILS.	1894.	1895.	1896.
Imports to United States....	32,797,000	36,250,000	32,105,920
Exports to Europe.....	875,000	725,000	1,120,000
Add Stock January 1.....	31,922,000	35,525,000	30,985,920
	2,725,000	3,182,000	1,249,920
Less Stock December 31....	34,244,000	38,707,000	32,235,840
	3,182,000	1,251,000	1,435,840
Deliveries to Manufacturers.	31,062,000	37,456,000	30,800,000

In the table which follows is an estimate of the visible supplies of India-rubber in the world on December 31, 1896, amounting to very little more than at the same period one year ago, when the figures were exceptionally small:

	Pounds.
Stocks in the United States.....	1,435,840
Pará grades.....	969,920
Central American and Caucho.....	64,960
African and East Indian.....	400,900

Stocks in Great Britain.....	3,991,680
Pará grades.....	2,226,360
All other.....	1,765,320
Stocks on the Continent.....	488,320
[Almost wholly African]	
Stocks of Pará at Pará and afloat.....	4,757,760
Total.....	10,673,600
Total, January 1, 1896.....	10,108,000
[This excludes stocks afloat of all other than Pará sorts.]	

The highest price recorded for fine Pará in 1895 is 90 cents in June and July. So high a price had not previously been quoted since 1891, in April of which year there were quotations of 95 cents.

GREAT BRITAIN.

THE English rubber movement for the calendar year 1896 was exceptionally large, giving that country first place in the quantity of crude rubber handled. The statistics indicate also a larger consumption of rubber in England than in any former year, though in this respect the United States continue in the lead. The details for the last four years follow, the figures indicating pounds:

	1893.	1894.	1895.	1896.
Imports.....	32,857,776	33,874,512	38,212,816	48,290,368
Exports.....	16,710,736	19,176,304	22,678,320	26,370,288
Net imports.	15,534,496	14,698,208	16,147,040	21,920,080
Great Britain being the principal handler and consumer of Gutta-percha, the movement of this material in a crude form in that country also deserves mention in this connection. Here are comparative figures for the same four years as above:				
	1893.	1894.	1895.	1896.
Imports.....	4,534,880	5,246,752	5,387,088	4,906,160
Exports.....	832,160	893,200	1,404,032	1,623,664
Net imports..	3,702,720	4,353,552	3,983,056	3,282,496

The combined English imports of India-rubber and Gutta-percha last year thus amounted to 53,196,528 pounds, which exceeded the figures for any former year by very nearly 10,000,000 pounds. This enormous total points to the highest record yet reached for the production of African rubbers, the full extent of which cannot yet be calculated.

ANTWERP.

THE report on rubber of L. & W. Van de Velde (Antwerp) for 1896 shows the following statistics of African rubber in the Antwerp market, the figures referring to metrical tons:

	1892.	1893.	1894.	1895.	1896.
Imports	63	167	274	530	1115
Sales	59	162	235	442	1065
Stocks (Dec. 31)	4	5	39	88	138

The bulk of the supplies has been of rubber from the Independent State of the Congo, the arrivals from other districts being of slight importance. The present stock is composed of Equateur, Bussira, Upper Congo ball, Kassai, Mongalla, and a few small parcels of different grades.

The practical mode now adopted in most of the Congo districts for producing a hard and pure rubber has given satisfactory results, and several grades are already so well reputed that out of the 1065 tons sold last year, 307 tons had been taken for forward delivery. In spite of the relatively large imports to a new market, the demand has constantly kept pace with the supply, and business has followed a regular course, sellers having generally met buyers' views. The fluctuations in prices have been small as indicated by the following table showing the highest and lowest prices paid during 1896:

	Per Pound.		Per Pound.
Fine red Kassai...	2s 6½d@2s 7½d	Arruwimi.....	1s 8½d@2s ½d
Fine black Kassai...	2s 4½d@2s 6½d	Upper Congo.....	2s @2s 1½d
Mixed black Kassai...	1s 10½d@2s 4½d	Mongalla.....	1s 10½d@2s 1½d
Second black Kassai	1s 8½d@1s 10½d	Bumba.....	2s ¾d@2s 1½d
Equateur.....	2s @2s 6½d	Red Thimbles.....	1s 2½d@1s 4½d
Lopori.....	2s 2½d@2s 5½d	Black Thimbles.....	1s 1½d@1s 3½d
Uelle.....	1s 8½d@1s 11½d	Luvituku.....	1s 19d@1s 3½d
Bussira.....	2s 1½d@2s 4½d	Lake Leopold.....	1s 10½d@2s ¾d

The great care given at Antwerp to assorting the different qualities and the reliable way in which the business is conducted, coupled with the facility for distributing the goods from this port to the different places of consumption have much contributed to the remarkable development which this article has taken in that market.

Estimates are given that the supply for 1897 will reach 1500 to 2000 tons, and it is expected that the production of Congo rubber will take a further great expansion as soon as the railway from the port of Matadi to Stanley Pool will be completed (about half of the distance is built at present), which will put the coast in communication with about 10,000 miles of navigable rivers, nearly all running through the districts where the rubber is collected.

The annual report of Emile Grisar (Antwerp) puts the arrivals of Congo rubber at that port at 1,106,375 kilograms, and the arrivals from all other sources at 9500 kilograms, or a total of 1,115,875 kilograms, which agrees with the total given above. This is equivalent to 2,453,925 pounds.

THE RUBBER INDUSTRY IN CHICAGO.

IN Chicago, according to the *Tribune*, of that city, manufacturers of rubber goods, hose and leather articles, had an active trade last year up to July, the business in bicycle tires being especially heavy. After the date mentioned came a depression which continued up to within six weeks of the close of the year, when municipal orders and the demand for druggists' sundries gave evidence of the return of the conditions prevailing early in the year. No change was made in the number of houses, capital employed, workmen, or the daily wages paid, but during the months of depression referred to days of work were lessened, some firms only running four days of the week.

THE PNEUMATIC RUBBER BOAT.

THE illustrations show what is perhaps one of the most ingenious pieces of air work that the rubber trade has yet produced. Briefly described, this is a row boat about fifteen feet long, made with double walls of rubber and fabric. These



are inflated so that a very buoyant, and at the same time safe boat is the result. These vessels are made in two styles, one with a light wooden frame which can be knocked down and folded into small compass, and another without any frame.



The ordinary type of boat has seats for two people, but can carry as many as can crowd in, as the boat is unsinkable. The walls of the pneumatic chambers, which are six in number, are practically unpuncturable, and yet are not thick enough to make any special additional weight. The boat itself when deflated weighs about fifty pounds.

At present there is only one shape manufactured, but very shortly there will be

a half-dozen different sizes produced, adapted for various waters and a variety of wants. This boat is the invention of H. D. Layman, and is manufactured by the Pneumatic Row Boat Co., No. 8 West 14th street, New York.

THE report comes from Canada that the manufacture of leather bicycle tires seems to have been a somewhat dismal failure. Less than 500 pairs have been turned out, but these have sufficed to show that the old saying, "Nothing like leather," does not apply to bicycle tires. The leather undoubtedly wears away more rapidly than the rubber, but in the splicing, especially, is where the rubber tire has the greatest advantage.

• MR. J. FRANCIS HAYWARD.

IT has always seemed the right thing that there should be both Goodyears and Haywards in the rubber business; that is, since the two pioneers of that name succeeded in making India-rubber valuable by the use of sulphur and vulcanization. The subject of this sketch not only bears a name honored in the rubber trade by inheritance, but is actually a nephew of the early pioneers, Nathaniel and Daniel Hayward. Mr. J. Francis Hayward has had a long experience in the rubber business, having entered the employ of the Boston Belting Co. when he was twenty years of age, his position being that of assistant cashier. He had been there for four years, when he became connected with the Boston firm of Clapp, Evans & Co. During the ten years he was connected with this house he held various positions, being bookkeeper, order clerk, and having full charge of the stock. Later he took charge of the store opened by the National India Rubber Co. in Boston, and remained there four years, when the business was taken by the Goodyear Rubber Co., of New York. He remained as manager for this concern for four years and then started out in business for himself. At present he is treasurer of the Cable Rubber Co., which position he has filled for some five years past. In addition to this interest he has formed the following corporations, all of which are in active business, and in each of which he holds the office of treasurer: The Lowell Rubber Co. (Lowell, Mass.), the Hope Rubber Co. (Providence, R. I.), the Lawrence Rubber Co. (Lawrence, Mass.), and the Fall River Rubber Co. (Fall River, Mass.). Mr. Hayward is a Free Mason and his home is in Quincy, Mass. He is exceedingly energetic and spends much of his time in traveling the country over, and is not only a well-known, but an exceedingly able marketer of rubber goods. There are few men in his position to-day who take such an active interest in the rubber business, who are more widely known, or who have more elements of popularity, and a wider circle of friends and acquaintances.



J. FRANCIS HAYWARD.

BAD RECORD OF THE PARA CABLE.

THE Amazon-river cable, laid a year ago between Pará and Manáos, at a cost of £210,000, has had a far from satisfactory experience. In a report dated November 27 last, the United States consul at Pará says that since the first thirty-one days from the opening of the cable it had been practically impossible to send messages, owing to breakages, notwithstanding repairs had been almost constantly at work upon it. It was thought, when he wrote, that the cable might be working by the end of the year. At a meeting of stockholders of the Amazon Telegraph Co., Limited, held in London on December 31, it was stated that the interruptions were expected to come to an end within another month.

Consul Mathews reports: "It is claimed by engineers that

the cable up the Amazon cannot be made a success on account of the very strong current and the many obstructions found in the bed of the Amazon river. They are now laying the cable near the bank in the shallow water, where it is believed by many it will prove more successful." The report of the company's directors to the stockholders, in December, said: "With respect to the breaks which had occurred the shareholders must remember that the cable was laid in an enormous river the waters of which were comparatively unknown, and although every precaution had been taken it was impossible in such a gigantic enterprise as theirs to foresee everything. Their difficulties had occurred in the upper waters, where numerous other rivers came in, and where in the rainy season enormous masses of *débris* were carried down, and the repairs which were necessary had had to be effected during a period of flood. . . . They hoped that the additional experience which they had

gained would render them less liable to interruptions. They all felt that if a fairly continuous service could be maintained their traffic would very much increase." It was their intention that the *Inverness* should remain permanently up river as a repair ship, but she had been wrecked and another vessel would have to be purchased. The *Inverness* carried from England in November 100 miles of additional cable for the company.

The total receipts between February 12 and June 30 had been £11,675, of which £5224 was from messages, and they had been assisted to the extent of £6371 by the subsidy of the Brazilian government. The subsidy promised is £17,000 per year, for twenty years.

"The general opinion when the cable was first projected to Manáos," says Consul Mathews, "was that it would be a serious blow to Pará, and would materially affect her commercial importance. But in contemplation of that, the rubber crop of the islands of the lower Amazon was increased 33 per cent. over the previous year, thus providing a reserve supply and proving beyond a doubt

that Pará's commercial future is secure and will not in any way be jeopardized by the cable to Manáos. The banking facilities of Manáos are very poor and the greater portion of the exchange to cover business done there is placed with the banks of Pará. That will be changed when the cable is established and they can have exchange quotations from Rio de Janeiro daily to guide them."

CARE OF RUBBER ARMY SUPPLIES.

THE quartermaster general's office, at Washington, advises THE INDIA RUBBER WORLD that, it having been discovered that rubber goods, when brought into contact with camphor and naphthaline, become blistered and disintegrated to such an extent as to render the articles unfit for use, the officers of the army have been advised of this fact. Instructions have been given, therefore, that such rubber goods as army blankets, ponchos, and arctic overshoes be kept free and separate from the moth-preventives referred to.

RUBBER FEATURES OF THE NEW YORK CYCLE SHOW.

THE third National Cycle Exhibition in New York is in progress at the Grand Central Palace of Industry as this paper is being printed, the dates being February 6 to 13. It is on a larger scale than any predecessor and promises to be successful from many standpoints, but the time limit must prevent THE INDIA RUBBER WORLD from devoting more than a cursory glance to each of the tire exhibits.

At the first American cycle show—opened in Philadelphia, March 2, 1891—the wheels shown were crude affairs and the only “pneumatics” were from England. A wheel scaling forty-two pounds was then considered a marvel of lightness. In wonderful contrast to this is the display of a million dollars’ worth of specimen wheels and accessories of American manufacture, by nearly 400 different firms, now open in New York, closely following upon an immense second annual show at Chicago. The American bicycle trade is now in the lead.

[L] New York Belting and Packing Co., Limited.—Exhibited “League” embossed tires as their standard product, with “League” smooth tires for those who prefer this type. The embossed tread is claimed to have the same advantage over other tires as the corrugated rubber-shoe sole over smooth soles. The 28" × 1½" size weighs 4 pounds and is listed at \$12, the smooth tread going at \$10. The “League” racing tires shown contained a specially woven loose thread fabric, with the outer cover of lighter construction than the road tires. Rubber Tire Association guarantee.

[59-61, 68-70] Overman Wheel Co. (Chicopee Falls, Mass.).—This concern manufactures the “Victor” bicycles, to every detail, including the “Victor” tires. These are made in single-tube and double-tube, but the former is the standard equipment, although the company first made double-tube tires and still control the patents for that type. The company say that it would be very profitable to them if the double-tube were universally used, but they are obliged to conform to mechanical laws, and, therefore, recognize “that light single-tube tires are in every way better adapted for easy-running bicycles.”

[126 to 131] Gormully & Jeffrey Manufacturing Co. (Chicago).—The manufacturers of the “Rambler” bicycle have their own type of detachable tire known as the “G. & J.” It is manufactured by the Indianapolis Rubber Co. and the B. F. Goodrich Co. (Akron, Ohio), and at several other rubber factories, under license. These tires for 1897 are furnished in three styles—“Road,” made of the weight which experience has shown to be best for all-around road work; “Tandem,” adapted to use on multicycles and on single wheels for heavy-weight riders; and “Heavy Tread,” for use on bad roads, having a much heavier surface of rubber than the “Road” tire. The number of corrugations in the “G. & J.” tires has been increased from five to seven. “Road” tires 28" × 1½" are listed at \$12 per pair and the other two styles at \$14. Rubber Tire Association guarantee.

[149-150] Indiana Bicycle Co. (Indianapolis).—This concern manufactures the widely-known “Waverley” bicycles in two grades, sold at \$100 and \$60. They manufacture for their regular equipment the “Waverley” molded single-tube tire. It is optional with purchasers to specify Morgan & Wright or Dunlop tires. Rubber Tire Association guarantee.

[169-170] New Brunswick Tire Co. (New Brunswick, N. J.).—Under this style the former works of the New Brunswick Rubber [Shoe] Co. are now operated by the United States Rubber Co. in the making of single-tube tires, in disregard of the

Tillinghast patents. Their leader is the basket-tread “Volt,” with a smooth tire of the same class called the “Trim.” Cheaper tires are the “Messenger” (basket tread) and “Meteor” (smooth). For tandems are made the “Brunswick” (basket tread) and “Jersey” (smooth).

[199-200] Spaulding & Pepper Co. (Chicopee Falls, Mass.).—Exhibited single-tube tires of the styles “XL,” “One,” “Two,” “Three,” and “P. & M.” The latter is furnished with a patented strip of a material designed to prevent punctures. These tires are listed at \$12 per pair, excepting the first named, which is \$14. The same company make the L. C. Smith detachable tire and “G. & J.” tires. Rubber Tire Association guarantee.

[204-206] Hartford Rubber Works Co. (Hartford, Conn.).—Exhibited the “Hartford” single-tube tires, of which four numbers are catalogued. The 28" × 1½" tires weigh 4 pounds, and the price is \$12 per pair, with the exception of “No. 77,” which is \$10. These tires form the standard equipment of “Columbia” and “Hartford” bicycles, and were supplied on 95 per cent. of the wheels of those makes last year. The company also make “Dunlop” and “G. & J.” tires under license. They exhibited pneumatic and solid rubber carriage-tires. Rubber Tire Association guarantee.

[209-211, 216] American Dunlop Tire Co. (New York).—An attractive display, with detachable tires on single wheels, mounted on nickel-plated standards, with experts busily explaining their merits. The standard weight for 1897 is 24 ounces, and the sectional diameters 1½ to 2 inches. Rubber Tire Association guarantee.

[218] The India Rubber Co. (Akron, Ohio).—The chief feature of this display is the single-tube “Arrow Tread” tire which leaves an impression on the ground of an arrow always pointing forward. These tires are made, if desired, in colors, and they are exhibiting red, white and blue designs, which have a novel effect, and are very handsome. Other tires shown are the “India B” and “India D,” and also the Straus single-tube and Straus double-tube tires, now manufactured at Akron.

[226-230] Boston Woven Hose and Rubber Co.—This large space was devoted to the display of the “Vim” tires and “Vimoid,” a tire-mending compound. There is practically no change in the “Vim” tires for 1897. The claims made are that they are hard to puncture, on account of the construction; slipping is prevented by the “pebble tread”; durability is assured by the choice of material; and the tire is fast and easy to mend. Rubber Tire Association guarantee.

[244, 245] The B. F. Goodrich Co.—Akron Rubber Works (Akron, Ohio).—Exhibited the “Goodrich” single-tube tire; the “G. & J.” clincher tire, the “Akron” and “Buckeye” double-tube tires, “Goodrich” single-tube pneumatic carriage-tires, and a full line of bicycle sundries, including the “Jiffy” repair tool and the “Goodrich” tire vulcanizer. Rubber Tire Association guarantee.

[246, 247, 267-270] Morgan & Wright (Chicago).—The leading feature of the “M. & W.” tires continues to be the “quick-repair” feature, first exhibited in the cycle-shows two years ago and described then in THE INDIA RUBBER WORLD. The liberal space taken by this firm is devoted to the exhibition of a small number of tires mounted on single wheels, and to electric-light and other displays calling attention to their “good tires.”

[257-259] L. C. Chase & Co. (Boston).—While not claiming that the “Chase” tough-tread tire cannot be punctured, yet by the use of two extra strips of duck on the tread, treated with a

certain toughening compound, the chances of puncture are greatly lessened. The weight of roadsters is 4 pounds. Rubber Tire Association guarantee.

[265,266] Newton Rubber Works (Newton Upper Falls, Mass.)—Exhibited (1) the "Newton" single-tube tire, embracing a supplementary wall to facilitate repairs, and adapted to cycles, multiple machines, buggies, and sulkies; (2) the "Newton" double-tube, or laced inner-tube tire; and (3) the "P. & K." detachable tire. The "Newton" single-tube, 28" x 1 1/4", weighs 3 1/2 pounds. The Newton repair outfit was also a prominent part of the exhibit. Rubber Tire Association guarantee.

[281,282,295,296] New York Tire Co.—Exhibited "Samson" seamless single-tube and "Ixion" seamless double tube tires, each weighing 3 1/2 pounds to the pair, Standard size. They exhibited tandem, "quad," racing, and juvenile sizes. The fabric is a seamless thread fabric of a constrictive nature that renders the pressure on every sectional part of an inch the same, thereby making the tire perfectly cylindrical and uniform in diameter. One 1897 feature is a milled tread extending along the entire wearing surface, claimed to produce a non-slipping surface without creating a suction where the ground comes in contact with the ground. Another is a thickened tread. Rubber Tire Association guarantee.

[316,324] Hodgman Rubber Co. (New York).—Exhibited the Hodgman "A"—fast road; "B"—standard road; "Amazon"—puncture-proof; "Juvenile," "Tandem," and "AA"—track racer. The price of "A" and "B" is \$12 and of the "Tandem" and "Amazon," \$14. The standard tires of the company on exhibition show a wide range of colors—red, blue and yellow, white, etc.—and THE INDIA RUBBER WORLD man was assured that all these had been selected from stock, there having been demands from customers for everything in the list. Rubber Tire Association guarantee.

[319] Self-Healing Pneumatic Tire Co. (New York).—The tires shown by this new concern are not claimed to be puncture-proof, but when they are punctured, a remedy is ready in the shape of a "healing balm" enclosed between two layers of vulcanized rubber. The "balm" is made of rubber and "other ingredients which cause it to maintain at all times a paste consistency." The tires are made with a specially-designed corrugated tread. For the road type, 28" x 1 1/4", weighing 4 1/4 pounds, the price is \$15 per pair.

[332,333,356] Weaver Cycle Material Co. (New York).—A new concern, succeeding J. A. Weaver, Jr., & Co. George S. Atwater is in charge of the tire department. They exhibited the "Kennedy" single-tube tire, rough and smooth tread, soft finished inside instead of being calendered, a construction which, it is claimed, affords a better grip for repair plugs. A tire made on similar principles, but for a lower-priced trade, is called the "Pickwick," also in rough and smooth tread. These tires are made for the company by the United States Rubber Co., and purchasers are supplied with a guarantee not only of material and workmanship, but also of immunity from losses from infringement suits.

[349,350] Peoria Rubber and Manufacturing Company (Peoria, Ill.)—The rapid development of this new company has been noted already in THE INDIA RUBBER WORLD. Their standard wheel—the "Patee"—will be listed this year at \$60, with tandems at \$100, and the standard tire equipment will be their "Peoria" single tube, seamless fabric. Rubber Tire Association guarantee.

[364,365] The Ball Tire Co. (New York).—Here was shown the most conspicuous novelty of the year in pneumatic tires. It is composed of a series of independently detachable balls, 1 1/2 inches in diameter, made of pure Pará rub-

ber and secured to the rim in a simple manner, forming a complete tire, so that the balls are separately inflatable and can be given any desired pressure. The balls are pressed closely together, so that a substantially continuous tread is obtained. When a punctured ball is removed and a new one inserted, the tire is not "patched" in any way, but restored to its original condition. The balls are made of rubber, and great resiliency is thus secured. There are no fewer than ninety balls in a tire, and they can all be inflated in twenty minutes.

[351] Brooklyn Rubber Co. (Brooklyn, N. Y.)—Exhibited the "Bernard" single-tube tire, made seamless and without splice, plain tread and corrugated. Their standard, 28" x 1 1/4", weighs 3 1/2 pounds; price, plain, \$9 per pair. This is their first year in tires. Rubber Tire Association guarantee.

[377] Consolidated Rubber Works (Reading, Mass.)—Exhibited "Kangaroo," a new tread tire, made by a novel machine process; roadsters, 28" x 1 1/4", weight 3 pounds 12 ounces, price \$12; racers, 28" x 1 1/4", weight 3 pounds, price \$12. Also the "Alligator Tread," which proved successful last season; size and weights above, price, \$9. Rubber Tire Association guarantee.

[635] M. & H. Manufacturing Co. (Boston).—The tires shown by this firm are of leather, treated by a waterproofing process warranted not to harden it. It is claimed to be non-puncturable, elastic, durable, and not inclined to slip on wet pavements. The lining is of rubber. The 1 1/4"-inch road tires weigh 2 1/2 pounds and are listed at \$10.

[668] Ideal Rubber Co. (Brooklyn, N. Y.)—The "Brooklyn Ideal" tire, patented May 23, 1893, and the "W. A. Ideal," for which patents are pending—both rough-tread single-tube tires, roadster, semi-roadster, and racer. The "Brooklyn Ideal," 28" x 1 1/4", weighs 3 1/2 pounds and is listed at \$11 per pair. The "W. A. Ideal" costs \$1 more. The company have several tire-repair specialties. Rubber Tire Association guarantee.

[671] Indianapolis Rubber Co. (Indianapolis, Ind.)—Exhibited a full line of "G. & J." tires, of which this company make the greater part used by the Gormully & Jeffery Manufacturing Co.; also, their "Indianapolis" single-tube tire, with both rough and smooth treads, and the "G. & J." vulcanizer.

[678] Mechanical Fabric Co. (Providence, R. I.)—Exhibited their well-known "Flexifort" (inner-tube) and "Conqueror" (hose-pipe) tires. Both styles, 28" x 1 1/4", weigh 3 3/4 pounds, the "Flexifort" being listed at \$8 and the "Conqueror" at \$10 per pair. Rubber Tire Association guarantee.

[740] Pará Rubber Tire and Manufacturing Co. (Williamsport, Pa.)—This is a new tire, of the hose-pipe order, but having inside a secondary wall practically impenetrable. Even if the tread should be punctured by a tack, the inner wall would resist its entrance to the air-chamber. The advantage of this device over some others is that there is not the loss of resiliency that occurs when the tread is composed of a punctureless, unyielding strip.

[760-761] Dean Tire Co. (New York).—The Dean non-puncturable tire in all stages of construction and as the finished article was shown at this stand.

[765] Deering Manufacturing Co. (New York).—The Deering "Duplex" tire, patented in August last, is a hose-pipe tire, having an inner, inflatable tire that can be inserted and removed through an opening which is closed with a steel clamp. The inner tube is designed for use in case the outer tube should be punctured. When not in use, it is drawn tightly around the rim side of the hose-pipe tire and held out of harm's way by a tape that is made in the tube. When one has the leisure to repair the hose-pipe tire, this inner tube may be deflated and left to rest until there is another puncture. The tire is listed at \$12.

AMERICAN BICYCLES AND TIRES AT THE FRENCH EXHIBITION.

[FROM OUR PARIS CORRESPONDENT.]

IN the Palais de L'Industrie, Champs Elysées, from the 12th to the 27th of December, the French gave their fourth annual international display of bicycles, consisting of machines from America, England, France, and Belgium, with an endless array of cycle requisites.

One great feature of this bewildering array of superb machines was the new manufacture of motor tricycles and auto-cars by French machinists, who, of late, have made a spirited attempt to introduce this new mode of traveling to the general public. Men in many stations of life have responded to this novel movement; orders have been given for petroleum motor machines, some for business purposes, others merely for a hobby, many for experiment with a view to further improvements. These self-moving vehicles are to be seen on the streets and outskirts of Paris.

We did not expect to find perfect motors in these first valuable models. The great desideratum is simplicity and fewness of parts. In this direction much remains to be done, for the case demands the application of many brains. Here is a vast field for American ingenuity. Her engineers and machinists should write direct to the French builders for their catalogues, —and for an extra ten cents Messieurs De Dion & Bouton of 12 Rue Ernst, Entaux, Seine, France, will forward full particulars of their motors,—or, better still, encourage the French manufacture by purchasing some machines; this would be doing a friendly turn.

Pneumatic tires mounted and unmounted were displayed by the thousand, the rubber and cycle manufacturers seemingly thinking of nothing else. No rubber handles (cork handles ruled), no rubber pedals, no rubber saddles, no rubber-soled shoes. The trade in these rubber requisites was wholly neglected. Little or nothing was shown in comfortable waterproof clothing, and the India-rubber manufacturers left their catalogues in their factories. Thus they let slip a golden opportunity for reminding the public of what they as manufacturers were doing.

Reports are circulated of a flood of American bicycles intended for England, France, and Europe. America has given us organs for our evening's amusement, and alarm-clocks to wake us in the morning. America has given us sewing-machines for our daily convenience, and thereby we are greatly benefited. Will America treat bicycles as analogous to sewing-machines? If so, bicycles will tax all the energies of her factories, and English factories too, to supply the world's demands. Twenty years ago sewing-machines cost \$24 to \$50 and required the savings of a workingman for six months, and, therefore, comparatively few were bought. Now a first-class machine can be had for \$12 and every housewife and domestic servant owns a machine. Can bicycles be produced in the same ratio to enable every home to acquire one or two machines? France could easily take ten times her present supply, and many homes in England have never yet dreamed of buying a bicycle on account of the high price. The price must come down. The American exhibits were:

Wolff-American. These machines were well known in Paris before the exhibition, the firm having an elegant store in Rue du Quatre-Septembre. The machines were in great favor with all buyers who resorted to the stand. It is just to say that few of the stands showed machines like the model racer Wolff of 7 kilograms (=15 pounds), and a roadster of 8 or 9 kilograms, (=17½ and 20 pounds) and for a lady's machine complete, in-

cluding mudguard, wooden dress-guard 10 kilograms (=22 pounds). The firm's new design of tricycle is the key of the situation being simple and practical for riding side by side without any inconvenience. The show machine was sold many times over.

The Pope Manufacturing Co. This is the first time that the French have been enthusiastic over this company's machines. Their several new methods of fitting-up machines, their tubular frames ingeniously jointed with special tubular rivets, thus discarding ferrules and brazier's work, were the points noted.

Fowler Cycle Manufacturing Co., Chicago. Their first quality machine with improved frame was much commented upon. This machine has been remodeled to great advantage. The French press highly commended this exhibit.

Morgan & Wright, Chicago. Pneumatic tires with air-chamber, fitted to wooden rims. The materials were of first quality, and the tire is noted for lightness and rapidity.

Waltham Manufacturing Co., Waltham, Mass. They exhibited pneumatic-tired machines, roadsters for men, and a special machine for ladies.

Hartford Rubber Works Co., Hartford, Conn. Their exhibit is a single-tube pneumatic tire, without an air-chamber, and therefore fixed permanently in the rim. It possesses the qualities of lightness, pliability, solidity, rapidity, and facility for repairs. The Hartford tire adapts itself to wooden rims as well as to the ordinary steel rim. General interest was shown in this excellent exhibit. Tubes, ferrules, chains, wheels, spokes, and all detachable pieces underwent a severe examination and were justly approved. The French recognize the great practical results of American ingenuity, and cyclists here think this admirable tire will have a great future in France.

The "Cleveland." These pneumatic and also single-tube tired wheels, the production of three stupendous factories, excite no little admiration.

To report on American machines would be to note: (1) The solid frames which give rigidity and resist all pedalling irregularities; (2) their saddle fixing which prevents the weight of the cyclist from straining the bolts; (3) the proportionate strength of all the parts; (4) detachable pinions; (5) their unique pedals and pedal fittings; (6) the only practical adjustable handles; (7) the parts of machines are all interchangeable.

The chief builders of the auto-cars shown are E. Levassor, Comte de Dion, Scotte, and Bollée. These advocate petroleum motors. There were also steam motors. Jeantaud prefers electricity.

The cycle exhibition was the best we have seen—truly a magnificent industrial display. Forty-one thousand persons visited the salon on the 20th, thousands arriving on their machines; 6000 visitors on the closing day—in all 84,000 passed the turnstiles.

THE CONVERSE YACHT "PENELOPE."

THE magnificent steam yacht *Penelope*, owned by Capt. Harry E. Converse, Gen'l Mgr. of the Boston Rubber Shoe Co., is now lying at Constitution wharf, Boston, and is attracting a deal of attention among yachtsmen. The boat will be put in commission early in April, as it is probable that the initial trip will be a run to Bermuda. No yacht has entered Boston harbor that is better equipped to make life on the water pleasant than this one. It is fitted with the latest type of marine engines and boilers, carries its own ice machine, has a wonderfully effectual ventilating and cooling system, has ten state-rooms for the owner and guests, and when in commission will carry a crew of 31 men.

NEW YORK AS A RUBBER-TRADE CENTER.

IN a recent special "Greater New York" edition of the *New Tribune*, much attention was given to the manufacturing interests of the metropolis, including some notes on the India-rubber industry. "Of crude rubber," says the *Tribune*, "the world's supply in the year 1896 was 37,500 tons, of which 13,433 tons were received at the port of Greater New York and constituted the raw material for the 151 rubber factories in the United States and Canada. Of that number 117 are located in New York, New Jersey, and the New England States, and most of those whose factories or principal offices are not in the city of New York are represented there by sales offices or agents." With regard to the whole range of rubber products, "Greater New York is the center of manufacture and distribution."

Speaking of hard rubber, the *Tribune* says: "The two largest factories in the United States, and those which may be justly considered the pioneers in the business, are located one in Greater New York, and the other just outside, but with its principal offices and salesrooms within the city. These two factories give employment to about 1500 people, and their products are sold not only all over the United States but even as far away as Cape Town."

RUBBER STOCKS AND RUBBER PROFITS.

A DIVIDEND of 2 per cent. has been declared upon the common or general capital stock of the United States Rubber Co., payable on February 15, and amounting to \$403,320. Added to the 4-per-cent. semi-annual dividend on the preferred stock paid on January 15 last, the disbursements to stockholders within thirty days will reach \$1,179,340. The company's total disbursement of profits since the beginning are stated in detail in a table below. The company was organized October 15, 1892, and the first dividend on the preferred stock was paid in May, 1893. The disbursement was smaller than under the 4-per-cent. dividends nowadays, for the reason that the capital of the company has since been increased. The dates of listing the shares on the New York Stock Exchange, and the amounts listed, have been as follows:

	Preferred Stock.	Common Stock.	Total Capital.
December, 1892.	\$12,942,500	\$13,481,100	\$26,423,600
May, 1893.	6,309,000	6,361,500	12,670,500
September, 1893.	149,000	323,400	472,400
Total.	\$19,400,500	\$20,166,000	\$39,566,500

The dates of payment of the dividends and the respective amounts of the payments have been:

Preferred—May, 1893—4%	\$ 536,004
January, 1894—5 1/2%	1,034,693
July, 1894—4%	776,020
January, 1895—4%	776,020
July, 1895—4%	776,020
January, 1896—4%	776,020
July, 1896—4%	776,020
January, 1897—4%	776,020
Common—March, 1895—2 1/2%	\$504,150
January, 1897—2%	403,320
Total.	\$7,134,287

Without considering the two dividends on common stock, the disbursements of profits for four years past have amounted to \$1,552,000 per year. It may be of interest to recall the statements contained in the original prospectus of the company as to the earning capacity of the combined factories at that time under consideration. The original capital stock of the United

States Rubber Co. was \$26,423,600, and the average annual profits of the factories originally embraced, for ten years, were reported to have been \$959,499, and the aggregate profits for the last of the ten years, \$1,181,186. Swelling these figures by 50 per cent.—the rate of increase of the capital of the company—we should have \$1,771,779 as preserving the rate of profits which existed at the formation of the company. It may safely be said that at least this much has been done.

The figures below record the transactions in United States Rubber stocks on the New York Stock Exchange during weekly periods for January:

LISTED ON THE NEW YORK STOCK EXCHANGE.
201,660 shares Common=\$20,166,000.
194,005 shares Preferred=\$19,400,000.

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
January 2, 1897. ....	.....	.....	.....	.....	.....	.....
January 4-9.	1,115	25	24	158	76 1/4	76 1/4
January 11-16.	1,509	24 3/4	24	540	76	75 1/4
January 18-23.	3,045	25 1/4	24 3/4	770	76	74 1/2
January 25-30.	1,469	24 1/2	*22 1/2	573	75	74 1/4
Total.	7,138	25 1/4	*22 1/2	2,041	76 1/4	74 1/4
January, 1896. .	19,902	29	24	1,227	89	83
January, 1895. .	13,296	45	39 3/4	2,152	94 5/8	91
January, 1894. .	4,083	40 1/2	36 1/4	1,447	85	79 3/4
January, 1893. .	9,604	47 3/4	42 1/2	5,521	99	94

* Ex dividend.

At an auction sale of securities in New York on January 13, there was a lot of United States Rubber offered and sold. The bids were 70 on 176 shares of preferred and 30 on 32 shares of common.

A BIG INITIAL SHIPMENT.

THE illustration shows very plainly that in spite of all the talk about business being dull east and west, that there are still some pushers on earth. As was chronicled in the last issue of *THE INDIA RUBBER WORLD*, the enterprising house of W. D. Allen & Co., of Chicago, have taken the agency for the equally enterprising manufacturers, the Manhattan Rubber Mfg. Co., of New York. The car load of mechanical goods



here shown was the initial shipment, and it is but just to say that these goods are many of them already in the hands of consumers and that others are on the way. W. D. Allen's force of twenty-five traveling men market a big lot of mill supplies and securing them as agents means the outlet for a great quantity of mechanical rubber goods.

THE REVIVING POPULARITY OF TENNIS GOODS.

THERE is a good demand for tennis, yachting, and sporting shoes, few of which were carried over from last season. Unquestionably goods in this line are regaining favor. The jobbers have had an opportunity for inspecting the samples for the 1897 trade and are beginning to talk business in the way of orders. The outlook is considered favorable, and already an increased sale over last season is counted on. Last season, by the way, the demand was heavier than in the one preceding. It is just two years since THE INDIA RUBBER WORLD found occasion to say, as then representing the condition of the trade:

"Tennis-shoes are in decreasing demand, stocks are very light, and prices this season are lower—this sums up the situation for an article of trade which all the rubber factories combined, three years ago, were scarcely able to turn out fast enough for the eager buyers. Neither age, nor sex, nor color was exempt then from the contagion of the new 'fad'; now even the Southern darkey is getting too proud to do honor to the beautiful sporting shoes about which summer girls raved and poets sang. When the decline began is not a matter of concern now. One cannot say even what sent the tennis-shoe to the rear."

The 1895 trade of the United States Rubber Co. was supplied by a single factory, as a side issue. Last year two factories contributed to the output, and it is reported that a third factory—the Lycoming—is producing tennis goods this year. That the trade is reviving in extent is evident from the attention that it is receiving at the hands of the United States Rubber Co., who have established a special selling-agency for goods of this class, in charge of an expert, Mr. F. D. Balderson, as noted already in THE INDIA RUBBER WORLD. The Goodyear India Rubber Glove Manufacturing Co. have remained in the field from the beginning of the tennis-goods trade—though confining their production at times to the production of orders—and are offering a complete line this season as usual.

The reviving popularity of the tennis-shoe is partly attributable to the improved appearance of these goods as compared with any previously placed upon the market. There is a greater range and variety in the materials used, and some of the novelties—particularly the white duck, with white rubber soles—have produced a striking and pleasing effect. What is more to the point is the fact, now clearer than at first, that the decline in favor of tennis shoes after the first two or three years of popularity, was largely due to the quantities of very cheap goods put upon the market which served to disgust buyers by reason of the poor quality. Of late there has been a reaction; a stop has been put to the manufacture of the poorer grades of goods, and pains taken to produce a good quality, especially in the medium-priced lines. The list issued for 1897 by the United States Rubber Co., which is given in full herewith, is practically without change from the list for 1896, except that a slight increase has been made in the prices of the No. 2 grade—"Champion"—in the Oxford style:

Yachting Shoes, white rubber soles, solid leather insoles, in cartons; extra heavy white duck.

	Men's.	Boys'.	Youths'.	Women's.	Misses'.	Child'n's.
Oxfords...	.90	.88	.80	.85	.80	.75
Balmorals...	1.10	1.05	1.00	1.05	1.00	.95

Gymnasium Shoes, extra quality duck, solid leather insoles, in cartons; white, black, or brown duck.

	Men's.	Boys'.	Youths'.	Women's.	Misses'.	Child'n's.
Oxfords.....	.70	.65	.60	.65	.60	.55
Balmorals....	.90	.85	.80	.85	.80	.75

Defender, solid leather insoles, in cartons; black or brown saten; also, white, black, and brown duck.

	Men's.	Boys'.	Youths'.	Women's.	Misses'.	Child'n's.
Oxfords.....	.70	.65	.60	.65	.60	.55
Balmorals....	.90	.85	.80	.85	.80	.75

Champion, in bulk; black or brown saten; also, white, black, brown, and check duck.

	Men's.	Boys'.	Youths'.	Women's.	Misses'.	Child'n's.
Oxfords.....	.50	.47	.44	.47	.44	.41
Balmorals....	.65	.63	.61	.63	.61	.59

As one of our contemporaries in the shoe trade remarks: "The makers of canvas shoes with specially-prepared rubber soles sewed on are pushing their lines in a way that gives a healthy competition and this will compel the rubber companies to furnish the best possible quality. There is a good field also in the gymnasium and sporting specialties, which are coming more and more into demand. Such lines have heretofore been sold mostly by the dealers in sporting goods, but are now becoming a necessary part of the stock for wide-awake shoe dealers."

NEW BOSTON RUBBER SHOE CO. OFFICES.

IT will be remembered it was chronicled in THE INDIA RUBBER WORLD some time ago, that spacious storehouses had been erected at the factories of the Boston Rubber Shoe Co. at Malden and Melrose. The plan was to give up the storing of goods at the great brick storehouse on Causeway street, Boston, and moving the offices from the lower floor of that building to have general offices nearer the center of the rubber shoe trade. As a preliminary to this the company have secured temporary accommodations in the Telephone Building, 125 Milk street, where everything was in running order on the morning of February 8. These offices are temporary for the reason that Mr. Converse has purchased the buildings Nos. 99 to 105 Milk street, where will be erected a modern ten-story office building.

This new building will be of the steel frame, fire-proof character, the first two stories of light stone and cream brick above. The cost will be about \$310,000. The first two floors will be reserved for the Boston Rubber Shoe Co. The rest of the building devoted to offices.

DOROTHY IS HERE.

DOROTHY, "Sister of Aurora, Josephine, Diana, *et al.*," recently appeared at the office of THE INDIA RUBBER WORLD, and was warmly welcomed by the whole staff, and her red brown hair, blue eyes, black brows and cherry lips were all duly admired. She scored another triumph for the B. F. Goodrich Co., whose embossedress extraordinary she is. To those who have not been fortunate enough to receive the magnificent pictures that this progressive company send to their customers and friends, it should be said that high art in advertising has never entered their doors. Further than this, the excellence of this work is typical of everything that the Goodrich Company do. Their whole line of goods in sundries, hard rubber and mechanicals reaching the acme of perfection.

ANOTHER BOGUS RUBBER COMPANY.

FACTS which have been brought to the notice of THE INDIA RUBBER WORLD indicate that a so-called rubber-manufacturing concern, claiming a location not far from New York city, have been employing such methods that it would not be wise for any one to entertain their requests for credit. In October last a New York firm dealing in sewing-machine supplies received by mail a small order, typewritten under a printed letter-head reading:

PARA RUBBER MANUFACTURING CO.,
Bicycle Tires and Sundries,
MANUFACTURERS OF Rubber Clothing and Mackintoshes.
East Setauket, L. I., 1897.

The order was for Singer sewing-machine attachments, and was signed simply "Pará Rubber Manufacturing Co.," no individual name appearing on the letter. The goods were shipped and payment was made by means of a draft signed "Pará Rubber Manufacturing Co." A second and larger order was received and filled, after which nothing more was heard of the East Setauket concern. All inquiries failed to locate any such company, and no trace could be found of any individual connected with it, until a registered letter addressed to Setauket was received for by the "Pará Rubber Manufacturing Co., per C. J. McDermott." This suggested to the New York company the similarity between the methods employed by their customers and those described in THE INDIA RUBBER WORLD of March 10, 1896, under the heading "Collapse of the So-called Iroquois Rubber Co." In that article was detailed the methods for securing credit employed by certain parties at Setauket, operating under a fictitious corporate title. With these facts for a clue, the counsel for the creditors of the "Pará Rubber Manufacturing Co." filed papers in suits against all the parties named in THE INDIA RUBBER WORLD as having been connected with the "Iroquois Rubber Co.," alleging conspiracy and fraud, with the result that, before the case could come to trial, the bill of the "Pará Rubber Manufacturing Co." was paid in full, together with costs.

Reference to our files shows that on October 10 last the following paragraph was published:

INQUIRIES have been received at the office of THE INDIA RUBBER WORLD respecting the Pará Rubber Manufacturing Co., of East Setauket, L. I., who have been writing to members of the trade in New York with regard to the purchase of supplies. In answer to a question, Joseph W. Elbertson, the Setauket rubber-manufacturer, said: "That is the name of a little concern that has gone into tire-making on a small scale at a place near Setauket. They are not incorporated, but are doing business as a copartnership. A man named Reese is at the head of the business, and they will make self-healing tires."

Inquiries in another direction elicited the mention of the names of Milton Frederick Reese and Charles J. McDermott as members of the copartnership. A member of the bicycle trade who wrote to the "Pará Rubber Manufacturing Co." for quotations on tires received a reply, signed with the name of the company, stating that orders would be filled for double-tube tires, 28 inch, at "\$3.25 a set, with 2 per cent. off for cash in ten days." The more recent of the Setauket concern's letters mentioned have been written under lithographed headings.

POLITICAL GOSSIP ABOUT MR. BANIGAN.

THE rumor that Joseph Banigan will be nominated for governor of Rhode Island by the Democrats has been revived, but no one competent to speak with authority will confirm it, says the *Boston Globe*. The same paper asserts that if Mr.

Banigan's ambitions had run in the line of state rulership he could have been governor of Rhode Island long ago—not because of the great wealth which he possesses, although wealth nearly always figures to some extent in gubernatorial elections—but because of his great capacity for business, his level head and his urbanity to all people, high or low. Mr. Banigan, as the head of numerous vast industries, performs a more important part in the interest of men than could any governor, and it is not at all probable that he would listen for a minute to any proposition for making him a candidate for governor. Committees and delegations that have waited on him in the past with such a purpose in mind could not be hired to make a second attempt.

* * *

WHILE Mr. Banigan is best known in connection with the India-rubber industry, in which his fortune was made, he is identified to an important extent with many other important interests. Besides being president of the Joseph Banigan Rubber Co., with \$1,000,000 capital, and of the American Wringer Co., with \$2,500,000 capital, he is director in the Mosler Safe Co., the Glenark Knitting Co., the Commercial National Bank, the Industrial Trust Co., and the Werner Co. He is also president of the Providence Building Co., which has just completed the erection of a magnificent ten-story office structure in Providence at a cost of \$1,500,000.

* * *

OF all the men engaged in the manufacture of rubber goods, says the *Boston Globe*, Mr. Banigan is the only one who has thus far realized the importance of dealing directly with the rubber-gatherers in Brazil. By going there in person and establishing a house in Pará, he secured his supply of crude rubber, and he is to-day the largest individual importer of rubber in the United States. A person may in a measure realize his mastery of detail and far-reaching comprehension when it is mentioned that he is obliged to carefully follow the fluctuations in exchange in Brazil and the causes which effect it in order to buy a block of rubber to advantage. He has also to follow the exports from and the imports to this country to accurately determine the balance of trade, so as to regulate his purchases of exchange on London to meet the drafts of his agents in Brazil.

THE BANIGAN TRADE MARK.

THE printed illustration here shown is a trade mark that has just been registered by the Joseph Banigan Rubber Co. (Providence, R. I.) Not only is it spirited, but it is pregnant with suggestion. To those who fully appreciate the un-



troubled self-reliance of the founder of the new company, the attitude of this magnificent lion suggests the mystery of the sphynx, on the other hand, those who are in close touch with and have been befriended by the same individual behold in the same figure a benign promise of further help in commercial conquest, while still another class who have measured swords with Mr. Banigan seem to discover in the pose

of the figure nothing but the most vigorous sort of challenge; and after all, none can prophesy whether it means all this, or none of it.

TRADE AND PERSONAL NOTES.

THE Standard Underground Cable Co. (Pittsburgh, Pa.) report that their factories are busy, the rubber department especially being well supplied with orders. Their capital is \$1,000,000. Four dividends of 2 per cent. each have been paid, on the business of 1896, and an addition made to the surplus which now amounts to \$308,107.

=Arlington U. Betts, of A. U. Betts & Co. (Toledo, Ohio), is on a visit to Mexico, where he is interested in the purchase of a very large tract of rubber forest and lands suitable for the cultivation of rubber trees. He has promised some details for INDIA RUBBER WORLD readers upon his return.

=The partnership which has existed since April 2, 1896, between Joseph Jackson and Samuel Fateles, under the style of the Regal Rubber Co., manufacturers of mackintoshes and cravenette garments at Brockton, Mass., was dissolved during the latter part of January on account of disagreement between the partners. The members of the dissolved firm were employed as cutters at the Standard Rubber Corporation's factory before they started into business for themselves.

=Mr. Arthur Needham Hood, secretary of the Hood Rubber Co., and Miss Ellen Katherine, daughter of Mr. and Mrs. Julian Henry Van Voorhis, of Beacon street, Boston, were married on the evening of January 27, in Grace Episcopal church, Newton, Mass., in the presence of a large company of society people of Boston and Newton. Mr. and Mrs. Hood will have an "at home" on March 1, at their residence, Trinity court, Boston.

=The Indiana Rubber and Insulated Wire Co. (Gas City, Ind.) held their annual election on January 19. The officers are: J. H. Seiberling, president and manager; Monroe Seiberling, vice-president; A. F. Seiberling, superintendent; S. H. Miller, treasurer; R. E. Lucas, secretary. A quarterly dividend was declared, and the prospect for the coming year's business was reported to be gratifying.

=The National India Rubber Co.'s Chicago agency was burned out in the fire which destroyed the six-story structure, Nos. 196-202 Monroe street on January 26. The loss was fully covered by insurance.

=The stock of Sayen & Austin, dealers in rubber goods at Nos. 21-23 North street, Philadelphia, was damaged by fire on January 26.

=Three hundred employes of the New York Belting and Packing Co., Limited, at Newtown, Conn., went on strike on January 27, as a protest against a decision by the superintendent. An employe who refused to pay for a piece of stock damaged by him was discharged. The labor union committee decided that the employe was not to blame, but the superintendent refused to remit the fine, and a strike was ordered.

=Mr. and Mrs. E. S. Converse are spending the remainder of the winter at southern resorts. They left Boston on January 25.

=The new firm of A. H. Krumm & Co. have purchased and taken possession of the store of the late C. L. Weaver & Co., Nos. 161-163 Jefferson avenue, Detroit, Mich. Mr. Krumm, for several years past, has been in the employ of the rubber-jobbing house of William Morse & Co., of New York, and is well and favorably known as a salesman. The new firm will handle Woonsocket and Candee goods, and probably, a large line of mackintoshes.

=The India Rubber Glove Manufacturing Co. (Naugatuck, Conn.) on Saturday, January 30, shut down their boot and shoe department—in the "Phoenix" mill. About 800 hands were deprived of work indefinitely.

=The Assanpink Rubber Co. Trenton, N. J., which succeeded Murray, Whitehead & Murray has been dissolved, the plant having been sold and business entirely given up by the former owners. Mr. C. Edward Murray, who was the practical owner of the business, will still continue the manufacture of insulated wire at the factory of the Crescent Insulated Wire Co. and also fill the position of city clerk, Trenton.

=The sympathy of the rubber trade has never been more manifest than as recently shown in the many expressions of sorrow and regret when the information of the sudden bereavement of Mr. Edward H. Garcin was received. The sudden loss of his young and beautiful wife, his own bereavement, and the thought of the three orphaned little ones, has touched every heart.

=Mr. A. F. Townsend, Vice-President of the Manhattan Rubber Mfg. Co. New York, has gone to Kingston, Jamaica, for a brief winter's vacation. He expects to return about the middle of February.

=Mr. Harold Jeans, who for some time past has been connected with the rubber business in mechanical lines, has gone to England in the interests of the Automatic Rubber Mills Co., Boston. His headquarters will be at 222 and 225 Strand, London, W. C.

=Mr. Samuel F. Randolph, Jr., is now traveling through New England in the interest of the Home Rubber Co., Trenton, N. J. Mr. Randolph has already proved himself a good salesman and is one of the energetic and reliable sort exactly suited to this trade.

=One of the largest belt presses in use has just been set up at the factories of the Home Rubber Co. (Trenton, N. J.) It was manufactured by the Farrel Foundry and Machine Co., Ansonia, Conn., and is thirty feet and six inches in length and seventy-six inches in width.

=The La Crosse Rubber Mills Co., mentioned in another paragraph, have purchased a fine plant which is already equipped with an 80 h. engine and first-class boilers. The buildings have double wooden walls with a concrete filling between, the engine and boiler house being of stone, the whole giving a floor space of some 20,000 sq. ft. The plant is especially well fitted for shipping, a side track coming into the yard and enabling goods to be sent over any one of four roads that enter the city, or by boat down the Mississippi river. The factories will soon be equipped with washers, grinders and spreaders, and the business will start up on proofing, mackintoshes, and specialties. As we go to press, Manager Geo. S. Andrus, who has been spending a couple of weeks in the east returns to La Crosse, having contracted for his machinery and supplies.

=The Boston Belting Co. have placed the agency for their mechanical rubber goods, in Atlanta, Ga., with the Graton & Knight Manufacturing Co., the well-known leather belting manufacturers. These agents will hereafter carry a complete stock of the Boston Belting Co.'s rubber belting, hose, packing, etc., and be in a position to promptly supply the demands of the trade.

=The Ideal Rubber Co. (Brooklyn, N. Y.) have added to their line of products a new cement which is said to have remarkable adhesive qualities. It will prevent creeping of the tires, as has been shown by thorough tests. The price has been placed at a reasonable figure and the manufacturers guarantee it fully.

=Walter A. Clapp, who was at one time connected with the Hodgman Rubber Co. and later with the Boston Rubber Co., has taken charge of the rubber-clothing and mechanical-goods departments in the extensive establishment of F. C. Howlett, at Buffalo, N. Y.

=L. A. Wilmot Milbury, wholesale dealer in rubber clothing and shoes at No. 43 Peck slip, New York, confessed judgment on January 7 for \$5253, in favor of Seth Milbury, on five notes for borrowed money and services for selling goods. On the following day he made an assignment to John E. Maxwell. Milbury had been in business about two years and claimed to be worth \$11,000.

=The Hartford Rubber Works Co., besides occupying the new structure completed late in 1895, made several additions to their buildings in 1896, including a second and third story to the office of the superintendent. They also bought and occupied for a repair department a house containing 2700 square feet of floor space. Their total floor space now reaches 100,594 square feet.

=The Chicago Rubber and Belting Co. (Chicago, Ill.) are a new corporation, with \$2500 capital. The incorporators are Samuel G. Wickery, Joseph W. Hiner, and John E. Waters.

=The Allen Fire Department Supply Co. have been organized at Providence, R. I., to deal in hose couplings, etc., Mary E. Gilmore is president and Frank N. Babcock treasurer. They are incorporated under the laws of Maine with \$50,000 capital and have an office at Saco, Me., to fulfill statutory requirements.

=Morse & Rogers, New York shoe-jobbers who handle a large quantity of rubbers, have become incorporated under the laws of the state, with \$250,000 capital.

=The Hood Rubber Co. (Watertown, Mass.) have so planned their factory that no belting is used throughout. The machinery is run by shafting running beneath the floor and connecting directly with each machine, the rope transmission being used from engine to main shaft.

=The Globe Rubber Co. (Trenton) have become incorporated under the laws of New Jersey, with \$40,000 capital in shares of \$100 each. Samuel K. Wilson has 398 shares and Samuel Cadwallader and Charles A. Joslin one each. The Globe Rubber Works were erected about 1878. The Mr. Joslin named is the son of the late Jacob D. Joslin, superintendent under the original Globe company. Mr. Cadwallader is the general manager, and has been connected with the company for a number of years. The company manufacture a general line of mechanical goods.

=The Monarch Rubber Co. (St. Louis) are preparing for a large year's business. They represent the lines of the Boston Rubber Co., the New Jersey Car Spring and Rubber Co., the Page Belting Co., and the Home Rubber Co. Manager Waggoner has sent out six experienced traveling men, to cover the entire southwest.

=Mr. F. A. Leland has returned from the Chicago Bicycle Exposition, just in time to represent the "League" at the Grand Central Palace, Space L. The "Get There and Get Back" tire is as much talked about now as during the great six-day race at Madison Square Garden. Teddy Hale retains his old fondness for the "League," and will be found in close proximity to it, exercising on his home trainer.

=The trustees of the first-mortgage 6-per-cent. bonds of the Mechanical Rubber Co. announced recently that they were desirous of expending the sum of \$49,583 in the purchase of bonds of that issue, provided the purchase could be made advantageously. Offers were to be sent to the Knickerbocker Trust Co., No. 66 Broadway, New York.

=W. D. Walsh & Co., the well-known rubber jobbers of St. Louis, Mo., have removed from their former location at the corner of 7th street and Lucas avenue, to 413 Washington avenue. Their present location is far superior to the former one, as they are now on the ground floor on the main wholesale street of St. Louis. They are also very close to the main retail street of the city. Their store is 140 feet deep, the front being devoted to the retail department where everything in the line of rubber goods is carried. The rear part of the store and the spacious basement is devoted to their wholesale trade.

=The World Mfg. Co. (82 Reade street, New York) have taken the agency for the Kenwood bicycles, manufactured by the Hamilton-Kenwood Co., of Grand Rapids, Mich. These wheels are of the highest grade and from the writer's knowledge of wheels are confidently described as equal to any that have ever been placed upon the market. Another specialty in this line is the 1897 Model made for the World Mfg. Co. It is listed at \$75 and is really a wonderfully good machine for the money.

=Mr. Geo. W. Bowly, formerly salesman for the New York Belting & Packing Co., for the South, has accepted a position with the Manhattan Rubber Mfg. Co., making his headquarters at Atlanta, Ga.

=If the reader is really anxious to see an effective and ingeniously humorous circular with illustrations that are original works of art, he should write W. D. Allen & Co., 151 Lake street, Chicago, for the leaflet entitled "Go."

=Mr. John Mills, Gen'l Manager of the W. H. H. Peck Co., Cleveland, O., retired from that position February first. He was connected with the Peck company for twelve years, and expects still to remain in the rubber business although has not as yet made his future connections public.

=Mr. Frank Cazonove Jones, Prest. and Gen'l Manager of the Manhattan Rubber Mfg. Co. (New York) has just returned from a three weeks trip among the larger customers and agencies of the company in the West.

=The L. C. Chase Co. recently produced an elegant lithograph showing a magnificent fox closely pursued by a huntsman on a bicycle, that individual in turn being followed by the hounds. A curious fact in connection with this ideal sketch is, that within thirty days a huntsman in England who was an enthusiastic bicyclist actually entered the chase and won the brush, coming in ahead of both horsemen and hounds.

=Mr. Wm. P. Barutio, who was formerly connected with the Boston Woven Hose & Rubber Co., is now manager of the Lovejoy Lighting & Heating Co., Philadelphia.

=At a sitting of the Canadian tariff commission, at Hamilton, Ont., Mr. Trenanan, of the Domestic Specialty Co., advanced strong reasons for a rearrangement of the duties on rubber cement used in the bicycle and boot and shoe industries. There were, he said, about 6000 barrels used in Canada annually. While there was a protection of only 25 per cent. on the finished article, they paid almost 100 per cent. on the raw material. An important element in the manufacture of this article is naphtha, on which the duty is 72 per cent. He did not ask that the raw material be reduced, but he asked that the duty on cement in bottles be 35 per cent. and that in bulk it be 30 per cent. and six cents a gallon.

=As the result of the injunction against the new concern calling itself the Akron India Rubber Co., at Akron, Ohio, to restrain them from the use of that name, it has been decided to adopt the name of The India Rubber Co.

=It is reported that the Kokomo Rubber Co. (Kokomo, Ind.) have received such liberal orders for their tires as to make it necessary to work twelve hours a day.

=One of the most beautiful calendars that has ever come to the office of THE INDIA RUBBER WORLD is the Rose Calendar, issued by the Cushion Tire Wheel Co., of Columbus, Ohio. It consists of six large cards on each of which is a magnificent rose in water-color, while about a quarter of the space is devoted to two of the calendar months and a modest bit of printing giving the name of the donor. The cards are tied together with a white satin ribbon, and the calendar is one that no lover of beauty could ever throw aside.

=Messrs. Francis Reddaway & Co., Manchester, England, have patented an improvement on woven belting which is said to render the margins less liable to fray, which is as follows. In weaving the belting the edges are reduced in thickness, this thinner part being later built up by strips of Gutta-percha which is molded into a straight and even edge. This, when cool, easily bears the friction that usually comes to belt edges and is elastic enough to bend over any kind of pulley.

=The Canadian government has been petitioned by the shoe industry to reduce the tariff on elastic webbing from 20 per cent. to 15 per cent., if not lower, on the ground that this article is not manufactured in the Dominion.

=Articles have been filed for a limited copartnership under the style of Schrader & Ehlers, to transact business in importing and selling India-rubber and Gutta-percha goods, in New York, for three years from January 1, 1897. William Schrader and William Ehlers are the general partners and Dr. Heinrich Traun, of Hamburg, Germany, is the special partner, contributing \$2000 to the common stock. Messrs. Schrader & Ehlers have been for several years general agents in this country for the extensive factories of the Harburg Rubber Comb Co., owned by Dr. Heinrich Traun. They have also transacted business as the Excelsior Rubber Co., manufacturing sponge rubber and stamp rubber on a large scale. Their address is No. 335 Broadway, New York.

=Mr. A. H. Goode, traveling representative for the Southern States of the New York Belting & Packing Co., Ltd., is now on his way through that section. On this trip he will cover the ground from Maryland to Georgia.

=The contract for the rubber bands required for the municipal offices in New York city for this year was awarded on December 24 to the L. W. Ahrens Stationery and Printing Co. for \$4066.75. They were the successful bidders last year, and supplied goods of E. Faber's manufacture.

=The Clayton & Lambert Manufacturing Co. (Ypsilanti, Mich.), who manufacture a line of hose goods in brass, will send free one of their Hose Band Puzzles to any reader of THE INDIA RUBBER WORLD sending a request for it and enclosing two cents in postage.

=The Joseph Banigan Rubber Co. factory (Providence, R. I.) had its first alarm of fire on January 30, when some of the blocks drying in the kiln of the shoe-last department caught fire. The firemen were prompt to the rescue, and the total damage did not exceed \$500.

=The annual meeting of the shareholders of the Canadian Rubber Co. of Montreal was held on January 28. President Allan presided, and after the annual report had been read and adopted the election of directors resulted: Andrew Allan (president), Hugh McLennan (vice-president), W. J. Withall, Frs. Scholes, J. B. Learmont, H. Montagu Allan, W. H. Benyon, Andrew A. Allan, and John Thomas Molson.

=The C. H. Hanson Co. (Chicago, Ill.) have been incorporated, with \$100,000 capital, to manufacture rubber stamps and stencils, succeeding to the business conducted since 1866 by Christian H. Hanson. The other incorporators are Edward C. Band and George W. Schroeder.

=The Fairfield Rubber Co. (Fairfield, Conn.) will erect a 90-foot flag-pole on their factory grounds from which to fly the American flag every day.

=The Chicago Rubber and Mill Supply Co. on December 8 confessed judgment in the Chicago courts for amounts aggregating \$14,234.75, in consequence of which George R. English was appointed receiver of the company. On the 15th of the month Edward R. Gruger, a stockholder in the company, petitioned for the removal of English and the appointment of another receiver, alleging that the judgment which resulted in the appointment was based upon a note drawn by Frank C. Vierling, president of the company, in his own favor and without proper consideration. It is alleged that Vierling had diverted the funds of the company to his private use, and that English is likely to be favorably disposed toward those who secured his appointment. It is further alleged that the company has sufficient assets to pay the debts, under proper administration. The failure of the company followed closely upon the arrest of Vierling, an ex-alderman in Chicago, upon a charge of embezzlement brought by parties for whom he has been a real-estate agent. Shortly afterward the Manhattan Rubber Manufacturing Co. (New York), a creditor, replevined \$12,000 worth of goods in the rubber company's store at No. 312 Dearborn street.

=An explosion in one of the boiler-houses of the Peerless Rubber Manufacturing Co., at New Durham, N. J., shortly after the beginning of work on January 9, was reported at length in the press, without much regard for the facts. It was merely an explosion of gas generated by the fresh furnace fires, due to neglect of the damper, and the damage, according to President Dale, did not exceed \$250. It has always been the policy of the company to divide, rather than concentrate, their plant, with a view both to avoiding inconvenience from accidents and to enable the works, if necessary, to be run economically at a reduced capacity. Consequently the delay caused by this explosion lasted only until fires could be started in another boiler-house.

=Two thousand cases of rubber boots and shoes were sold at auction in Boston, on January 28, by Fred H. Nazro, on account of the Underwriters' Salvage Co. They belonged to the wholesale stock of H. E. Smith & Co., of Worcester, Mass., who recently had a fire, and the goods were offered as water-damaged, though really in fair condition.

=The American Ball-Nozzle Co. (New York), on January 19, were levied upon by the sheriff, under executions aggregating \$2143. Two were in favor of the Mechanical Rubber Co. for \$1509, and the New York Belting and Packing Co., Limited, for \$202. Executions aggregating \$1400 had been satisfied a week before by a sale of a part of the company's property.

=The new addition to the plant of the Plymouth Rubber Co., conducted by Messrs. Marron and Sydeman, at Stoughton, Mass., will double their capacity. They are reported to be proofing about 2000 yards of cloth per day, and to be contemplating the manufacture of garments provided business improves by spring.

=The windows of the Boston Rubber Co. factory building at Franklin, Mass., have been boarded up, the machinery having been shipped to Canada.

=The Ridge Spring Tire Co. have been incorporated in Chicago to manufacture bicycle-tires, with \$100,000 capital. The incorporators are J. W. Plummer, J. Ridge, and J. W. Morrison.

=At the annual election of the Toledo Rubber Co. (Toledo, Ohio) last month, E. C. Deardorf was reelected president, and T. H. Deardorf secretary and treasurer.

=Work was begun on January 11 in the mill of the Joseph Banigan Rubber Co., at Olneyville, near Providence, R. I. Two grades of rubbers will be made. The first quality will be called "Banigans," while the seconds will be known as "Woonasquacketts." They are getting out samples and expect to be ready to start on orders in April for deliveries for next winter's retail trade. About 750 hands are employed.

=Mr. George A. Lewis, president of the Goodyear's Metallic Rubber Shoe Co. (Naugatuck, Conn.), is spending the winter at Aiken, S. C.

=Joseph Banigan has brought suit against the United States Rubber Co. for \$45,000, the basis of which is reported to be a claim for salary due him, which the company do not recognize. He has attached the funds of the company in the hands of the Industrial Trust Co., at Providence. The attachments placed in August last, by Mr. Banigan and the United States Rubber Co., each upon the other's property, in large sums, have never been lifted except that their respective bank funds were soon released, by mutual agreement.

=Superintendent Comee, of the Woonsocket Rubber Co., has been called upon by a committee of leading citizens of Millville, Mass., with the request that only residents of the town be employed in the company's factory in that town.

=The India Rubber Glove Manufacturing Co. (New York) have levied upon a quantity of rubber goods in the store of Gould, Lee & Luce, of Rochester, N. Y., who recently made an assignment. The goods seized, valued at about \$6000, were sold to the Rochester house by the India Rubber Glove company.

=Bernard J. McLaughlin, overseer of packing at the Millville factory of the Woonsocket Rubber Co., on finishing his work there to take a position in the Banigan rubber mill, was presented by the employes under him with a handsome testimonial of their regard.

=E. H. Parkhurst, of the New York Belting & Packing Co., Ltd., is now making a trip through the South, visiting the various large agencies of the company. He will return to the home office about the middle of February.

=The Granby Rubber Co. (Granby, P. Q.), it is reported, purpose building a large addition to their factory this season.

=The L. Candee and Co. (New Haven, Conn.) are equipped for doing a considerable amount of the printing required in their rubber-shoe factory. They have just bought a new job press, taking a "form" 14 x 22 inches.

THE QUALITY OF CONGO RUBBER.

AN item of interest in the annual report on rubber of Emile Grisar, of Antwerp, follows: "We have received this year [1896] a large number of parcels which have deteriorated more or less by having been kept for lengthened periods in the collecting districts; in fact, it is only owing to the recently advanced condition of the Congo railway that these very old parcels have been delivered in Europe at all. We do not expect to receive any more deliveries of goods spoilt in this way, as the railway will now be able to bring them to the coast in a reasonable time."

REVIEW OF THE INDIA RUBBER MARKET.

THE condition of the crude-rubber market since our latest review has been one of quiet, and practically without change. There has been a slight advance in Pará grades, the situation in New York being affected by the firm English demand, which has strengthened prices at Pará. But no advance can long be sustained which is not the result of a combined demand from both American and foreign consumers, and the conditions of the local rubber industry are not at present such as to warrant a strong buying demand. The changes, therefore, in the quotations for Pará rubber may be said to be in the nature of a sudden spurt, such as might occur at any time, and which can be regarded only as temporary. One month ago we quoted Islands, fine, new, at 78@79. The latest sales of this grade in the New York market were at 80 cents, and as we go to press holders are asking 81. The same rate of advance has been preserved in other grades, except in the case of Islands, fine and coarse, old, of which there is practically none in the market, and Upriver, fine, old, the quotations for which are unchanged, this grade not having participated in the last slight decline. But while the advances noted seemed to be only temporary in character, no considerable slump in prices need be looked for. From this date until the end of the crop year the monthly arrivals at Pará may be expected to fall off, and if the manufacturing conditions should improve at all, the resulting activity in local buying would have a sustaining effect upon prices.

There is no change to report in Centrals. There are no longer any stocks of importance of these grades held in any market. All arrivals are in small amounts, which are quickly cleared up by buyers. There is likewise nothing new to report in Africans, although receipts at New York and Boston have continued in good volume, beyond a slight advance in Lagos grades and a corresponding decline in pinky Madagascar.

As for the rubber industry in America, it is not necessary to go far into details to become satisfied that the output of goods is still below the average. THE INDIA RUBBER WORLD has been favored by the treasury department with statistics of the imports of India-rubber and Gutta-percha by the United States for the calendar year 1896, from which the following comparison is possible, the figures expressing pounds:

	India-Rubber.	Gutta-Percha.	Total.
In 1896.....	34,059,909	2,321,452	36,381,361
In 1895.....	41,766,774	3,031,155	44,797,929
In 1894.....	35,370,889	704,168	36,075,057
In 1893.....	39,634,706	487,970	40,122,676

Messrs. Kramrisch & Co. (Liverpool) report that the quantity of Lagos rubber imported in 1896 was heavy in comparison with the figures for the previous year—1040 tons. The prices of Lagos have advanced with the increasing consumption.

In regard to the financial situation Albert B. Beers, India-rubber and commercial paper (No. 58 William street, New York), advises us as follows:

"The conditions of the money market as regards commercial paper remained the same through January, as reported for December in your issue of January 10. The supply of desirable paper in general is taken quite readily at about 4@4½ per cent. for first-class well-known names, and 4½@5½ per cent. for names not so well known. At present the outlook points to a continued easy money market for some time to come."

NEW YORK PRICES FOR JANUARY.

	1897.	1896.	1895.
Upriver fine	82 @83	74 @77	74 @75½
Upriver coarse	52 @54	53 @56	55 @58
Island fine.....	78½@80	71 @75	71½@74
Island coarse.....	44½@46	43 @45	50 @52
Cameta coarse.....	50½@51½	46½@48½	54 @56

The latest quotations in the New York market are:

PARÁ.		Benguela.	
Islands, fine, new....	80 @81	Congo Ball.....	49 @50
Islands, fine, old....	none here	Cameroon Ball....	39 @42
Islands, coarse, new....	45½@46	Flake and Lumps....	24 @25
Islands, coarse, old....	none here	Accra Flake.....	18 @20
Upriver, fine, new....	82½@83½	Accra Buttons.....	47 @48
Upriver, fine, old....	87 @89	Lagos Strips.....	51 @54
Upriver, coarse, new....	53 @54	Lagos Buttons.....	43 @44
Upriver, coarse, old....	none here	Liberian Flake.....	30 @31
Caucho (Peruvian) sheet 40	@41	Madagascar, pinky...	56 @58
Caucho (Peruvian) strip 43	@44	Madagascar, black...	42 @44
Caucho (Peruvian) ball 49	@50	Mozambique, red ball...	@...
CENTRALS.		Mozambique, white ball...	@...
Esmeralda, sausage..	50 @51	EAST INDIAN.	
Guayaquil, strip.....	35 @40	Assam.....	42 @56
Nicaragua, scrap....	48 @50	Borneo.....	26 @38
Nicaragua, sheet....	none here	GUTTA-PERCHA.	
Mangabeira, sheet....	40 @41	Fine grade.....	1.30
AFRICAN.		Medium.....	1.00
Thimbles.....	33½@35	Hard white.....	85
Tongues.....	38 @39	Lower sorts.....	...
Sierra Leone.....	25 @52	Balata.....	...

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	7 \$400	Upriver, fine.....	8 \$050
Islands, coarse.....	3 \$800	Upriver, coarse.....	5 \$050
Exchange 8¼d.			

The statistical position of Pará rubber in New York and elsewhere is as follows, the figures expressing tons of 1000 kilograms:

	Fine and Medium.	Coarse.	Totals.	Totals. 1896.	Totals. 1895.
Stock, January 1.....	332	101	433	268	1081
Arrivals, January.....	401	167	568	1129	1291
Aggregating.....	733	268	1001	1397	2372
Deliveries, January.....	453	195	648	1147	1806
Stock, January 31.....	280	73	353	250	566
			1897.	1896.	1895.
Stock in England, January 31.....			1215	910	750
Deliveries in England, January.....			1300	875	850
Pará receipts, January.....			3360	3010	3425
Stock in Pará, January 31.....			1302	1340	1050
World's supply Jan. 31 (excluding Caucho)...			4386	3627	4150
Pará receipts since July 1.....			14,450	13,290	12,640

THE ANTWERP RUBBER MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Prices have been well maintained during the present month. The sales up to date amount to 46½ tons, of which we mention the following:

12 tons Upper Congo Lopori balls at 6.40 francs; last sale, December 22, at 6.30 francs.
 10½ tons Upper Congo Bussira balls (valuation 5.90 francs) at 6.02½.
 8½ tons Upper Congo balls (valuation 5.95) at 5.95.
 3½ tons Upper Congo balls (valuation 5.85) at 5.95.
 1½ tons red Kassai balls (valuation 6.95) at 7.02½.

The next public sale will take place on January 29 and will comprise 72 tons of the principal sorts. The arrivals per steamer *Albertville* (arrived December 24) amounted to 116 tons, against 42 tons for the same period one year ago.

C. SCHMID & CO.

Antwerp, January 25, 1897.

THE INDIA RUBBER WORLD has been favored with statistical statements on the crude-rubber movement for 1896 by Reimers & Meyer (New York), transmitting Pará and Manáos statistics from Pusinelli, Prütse & Co.; by Albert T. Morse, Nos. 35-37 South William street, New York; by the Gould Commercial Co., No. 78 William street, New York; by Albert Beers, No. 58 William street, New York; and by Kramrisch & Co., 4, The Albany, Old Hall street, Liverpool.

IMPORTS FOM PARA.

THE receipts of India-rubber direct from Pará and Manáos at the port of New York since our last publication are reported in detail below, the figures referring to pounds:

January 11.—By the steamer *Cearense*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	127,300	15,400	33,300	19,800=	192,200
Reimers & Meyer.....	55,000	14,600	25,300	.....=	94,900
Boston Rubber Shoe Co..	.....	.....	.....	17,600=	17,600
Sears & Co.....	6,100	3,600	5,500	.....=	15,200
Lawrence Johnson & Co..	11,400	1,100	2,200	.....=	14,700
Otto G. Mayer & Co.....	.....	.....	14,400	.....=	14,400
Albert T. Morse.....	8,600	600	1,700	.....=	10,900
P. Lima.....	3,100	600	3,700	.....=	7,400
Totals.....	211,500	35,900	86,100	37,400=	370,900

January 21.—By the steamer *Hildebrand*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	167,200	45,400	61,000	73,000=	346,600
Reimers & Meyer.....	129,700	43,700	80,100	20,700=	274,200
Boston Rubber Shoe Co..	38,600	6,400	16,800	11,500=	73,300
Sears & Co.....	39,100	12,700	13,200	.....=	65,000
Lawrence Johnson & Co.	27,800	17,500	15,900	.....=	61,200
Charles Ahrenfeldt & Son.	.....	.....	.....	51,400=	51,400
Joseph Banigan.....	16,100	13,400	3,900	.....=	33,400
G. Amsinck & Co.....	22,800	5,900	5,100	.....=	33,800
Otto G. Mayer & Co.....	.....	.....	28,400	.....=	28,400
Shipton Green.....	14,300	3,600	2,600	900=	21,400
Albert T. Morse.....	13,200	700	3,900	.....=	17,800
P. Lima.....	5,800	.....	5,000	.....=	10,800
George G. Cowl.....	3,200	1,100	1,000	.....=	5,300
Totals.....	477,800	150,400	250,100	144,300=	1,022,600

February 1.—By the steamer *Dona Amelia*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Hagemeyer & Brunn.....	115,300	13,900	3,800	.....=	133,000
Reimers & Meyer.....	100,300	10,700	9,500	.....=	120,500
Boston Rubber Shoe Co..	47,100	23,200	11,300	.....=	81,600
Charles Ahrenfeldt & Son.	12,100	.....	4,500	61,500=	78,100
Sears & Co.....	17,600	3,500	5,500	23,100=	49,700
New York Commercial Co.	14,300	3,600	3,200	.....=	21,100
Lawrence Johnson & Co..	5,300	1,100	7,200	.....=	13,600
G. Amsinck & Co.....	2,100	1,400	1,000	.....=	4,500
Totals.....	314,100	57,400	46,000	84,600=	502,100

February 5.—By the steamer *Fluminense*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	166,100	31,400	72,900	7,600=	278,000
Boston Rubber Shoe Co..	73,900	25,700	30,000	44,600=	174,200
Reimers & Meyer.....	50,100	18,500	63,600	.....=	132,200
Lawrence Johnson & Co..	.....	.....	54,700	.....=	54,700
R. F. Sears & Co.....	14,300	1,400	2,300	1,300=	19,300
P. Lima.....	6,900	400	5,200	.....=	12,500
Otto G. Mayer & Co.....	.....	.....	4,800	.....=	4,800
Totals.....	311,300	77,400	233,500	53,500=	675,700

1897. 1896. 1895.

January Imports from Pará 1,393,500 2,718,300 2,869,500

PARA RUBBER VIA EUROPE.

January 2.—By the steamer *Britannic*, from Liverpool:

George A. Alden & Co. (fine and medium).....	24,600
George A. Alden & Co. (coarse).....	3,000
Sgal & Co. (coarse).....	6,500

January 11.—By the steamer *Lucania*, from Liverpool:

Reimers & Meyer (caucho).....	6,000
Sgal & Co. (coarse).....	17,800

January 18.—By the steamer *La Bourgogne*, from Havre:

George A. Alden & Co. (caucho).....	8,500
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January 23.—By the steamer *Campania*, from Liverpool:

Sgal & Co. (coarse).....	14,000
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February 1.—By the steamer *Umbria*, from Liverpool:

George A. Alden & Co. (fine and medium).....	26,200
Reimers & Meyer (fine).....	24,000
Sgal & Co. (coarse).....	11,000

February 4.—By the steamer *Majestic*, from Liverpool:

Sgal & Co. (coarse).....	11,000
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OTHER NEW YORK ARRIVALS.

BELOW will be found in detail the imports at New York during January, 1897, of India-rubber from Mexico, Central America, and South America, other than Pará grades; also arrivals at New York of African and East Indian sorts:

CENTRALS.

JAN. 2.—By the <i>Finance</i> =Colon:	
Munoz & Esprilla	5,100
Frame, Alston & Co	5,520
H. Feltman & Co	3,357
A. Santos & Co	3,092
Roldan & Van Sickle	2,520
A. M. Capen's Sons	2,160
Dumarest & Co	1,682
Flint, Eddy & Co	1,560
G. Amsinck & Co	1,330
W. R. Grace & Co	1,166
Jacob Baiz	1,055
Lauman & Kemp	555
Ascensio & Cassio	317
J. Aparicio & Co	137
Total	29,541

JAN. 4.—By the <i>El Sud</i> =New Orleans:	
Albert T. Morse	5,576

JAN. 4.—By the <i>Yumuri</i> =Mexico:	
E. Steiger & Co	2,500
E. N. Tibbals	500
H. W. Peabody & Co	300
Thebaud Brothers	200
Total	3,500

JAN. 6.—By the <i>Athos</i> =Cartagena:	
Kunhardt & Co	1,000
Gulterman, Rosenfeld & Co	300
Total	1,300

JAN. 8.—By the <i>Silvia</i> =Cape Gracias:	
Eggers & Heinlein	15,000
A. B. Lascelles & Co	500
A. Lehman & Co	300
Total	15,800

JAN. 8.—By the <i>El Mar</i> =New Orleans:	
A. T. Morse	900

JAN. 8.—By the <i>Hilary</i> =Pernambuco:	
Allerton D. Hitch	2,000

JAN. 11.—By the <i>Imperial Prince</i> =Bahia:	
Otto G. Mayer & Co	7,600

JAN. 12.—By the <i>Ardenrose</i> =Greytown:	
Andreas & Co	13,000
A. P. Strout	11,000
G. Amsinck & Co	4,000
Munoz & Esprilla	1,500
Klinger Bros	700
Total	30,200

JAN. 12.—By the <i>Valencia</i> =Colon:	
H. Feltman & Co	7,000
New York Commercial Co	6,700
H. F. Cornwell	6,429
Flint, Eddy & Co	5,444
Samper & Jimenez	2,800
Munoz & Esprilla	2,650
A. M. Capen's Sons	2,386
D. A. De Lima & Co	2,232
Piza, Nephews & Co	2,104
Lauman & Kemp	1,733
Lonel Hagenaers & Co	1,675
Geo. R. Cottrell & Co	1,619
G. Amsinck & Co	1,435
A. P. Strout	1,349
Eggers & Heinlein	1,395
Elmenhorst & Co	1,037
J. Menendez & Co	1,000
W. Loalza & Co	957
J. Aparicio & Co	601
W. R. Grace & Co	590
P. Probst & Co	125
J. Agostini	111
Total	49,420

JAN. 15.—By the <i>El Paso</i> =New Orleans:	
A. T. Morse	30,000
W. H. Crossman & Bro	6,000
Total	36,000

JAN. 19.—By the <i>Alene</i> =Savannah:	
For London	4,500
For Havre	2,000
Cadenas & Co	1,000
Total	7,500

JAN. 19.—By the <i>Creole</i> =New Orleans:	
A. T. Morse	5,000

JAN. 20.—By the <i>Seneca</i> =Mexico:	
H. Marquardt & Co	700
E. Steiger & Co	700
Thebaud Brothers	500
E. N. Tibbals	200
Total	2,100

JAN. 22.—By the <i>Advance</i> =Colon:	
A. Santos & Co	7,275
H. Feltman & Co	4,753
W. R. Grace & Co	4,178
Roldan & Van Sickle	3,418
Dumarest & Co	2,151
Flint, Eddy & Co	1,945
Frame, Alston & Co	1,900
Geo. R. Cottrell & Co	980
Mecke & Co	755
R. S. Beston & Co	366
Total	28,121

JAN. 23.—By the <i>St. Louis</i> =Southampton:	
Reimers & Meyer	15,000

JAN. 25.—By the <i>El Sud</i> =New Orleans:	
Albert T. Morse	5,000
A. N. Rotholz	1,500
Total	6,500

JAN. 26.—By the <i>Adirondack</i> =Cartagena:	
For London	7,500
For Glasgow	700
Eggers & Heinlein	300
Total	8,700

JAN. 27.—By the <i>Vigilancia</i> =Mexico:	
Wittman Barnes Mfg. Co	700
E. N. Tibbals	200
Knoop, Frerichs & Co	300
Thebaud Brothers	200
Total	1,400

Total Centrals for January.....255,082

AFRICANS.

JAN. 1.—By the <i>Westernland</i> =Antwerp:	
Reimers & Meyer	8,300

JAN. 2.—By the <i>Britannic</i> =Liverpool:	
George A. Alden & Co	16,200
William A. Brown & Co	9,000
Otto G. Mayer & Co	5,600
Total	30,800

JAN. 4.—By the <i>Aurania</i> =Liverpool:	
Sgal & Co	7,500
George A. Alden & Co	5,300
A. T. Morse	8,500
Total	21,300

JAN. 5.—By the <i>British King</i> =Antwerp:	
George A. Alden & Co	15,000

JAN. 6.—By the <i>Phenicia</i> =Hamburg:	
Reimers & Meyer	7,800
Windmuller & Roelker	6,700
Total	14,500

JAN. 7.—By the <i>Majestic</i> =Liverpool:	
Sgal & Co	17,900
George A. Alden & Co	7,000
Total	24,900

JAN. 8.—By the <i>Pennular</i> =Lisbon:	
Otto G. Mayer & Co	46,500
Reimers & Meyer	34,500
Total	80,900

JAN. 12.—By the <i>Bovic</i> =Liverpool:	
Sears & Co	57,400
Reimers & Meyer	28,000
Total	85,400

JAN. 11.—By the <i>Lucania</i> =Liverpool:	
Reimers & Meyer	23,900
George A. Alden & Co	20,000
Sgal & Co	10,000
Albert T. Morse	11,000
William A. Brown & Co	2,500
Total	78,000

JAN. 12.—By the <i>Persia</i> =Hamburg:	
George A. Alden & Co	15,200

JAN. 15.—By the <i>Germanic</i> =Liverpool:	
Albert T. Morse	11,000

JAN. 18.—By the <i>Servia</i> =Liverpool:	
George A. Alden & Co	18,200
Otto G. Mayer & Co	5,700
Wm. A. Brown & Co	4,000
Albert T. Morse	5,000
Sgal & Co	1,100
Total	34,000

JAN. 19.—By the <i>British Queen</i> =Antwerp:	
Sgal & Co	9,000

JAN. 20.—By the <i>Noordland</i> =Antwerp:	
Oelrichs & Co	28,400
Otto G. Mayer & Co	9,400
Total	37,800

JAN. 21.—By the <i>Ontario</i> =London:	
G. Osgood Lord	1,000

JAN. 20.—By the <i>Teutonic</i> =Liverpool:	
Otto G. Mayer & Co	22,700
Reimers & Meyer	18,900
Sgal & Co	2,300
Total	43,900

JAN. 23.—By the <i>St. Louis</i> =Southampton:	
Reimers & Meyer	1,700

JAN. 23.—By the <i>Campania</i> =Liverpool:	
George A. Alden & Co	81,400
Pettingell & Everett	1,600
Reimers & Meyer	39,700
Sgal & Co	13,600
Wm. A. Brown & Co	9,600
Flint, Eddy & Co	2,200
To Order	10,900
Total	158,100

JAN. 25.—By the <i>La Gascoigne</i> =Havre:	
Otto G. Mayer & Co	1,000

JAN. 17.—By the <i>Friesland</i> =Antwerp:	
Reimers & Meyer	12,000

JAN. 30.—By the <i>Britannic</i> =Liverpool:	
Otto G. Mayer & Co	11,000
Wm. A. Brown & Co	2,500
Sgal & Co	1,500
Total	16,000

Total Africans for December.....699,000

EAST INDIAN.

JAN. 4.—By the <i>Port Phillip</i> =Singapore:	
Reimers & Meyer (Pontianak)	61,800
Robert Soltan & Co	10,000
Total	71,800

JAN. 7.—By the <i>Manitoba</i> =London:	
Otto G. Mayer & Co	1,000

JAN. 21.—By the <i>Benaritch</i> =Singapore:	
Reimers & Meyer (Pontianak)	105,200

Total East Indian for December.....178,000

RECAPITULATION.

Pará—direct imports.....	
Pará—via Europe.....	1,383,500
Centrals.....	142,600
Africans.....	255,082
East Indian.....	609,000
Total at New York for January.....	2,668,182

NEW ORLEANS.

JANUARY.	
POUNDS.	VALUE.
Nicaragua.....	20,743 \$8,711

